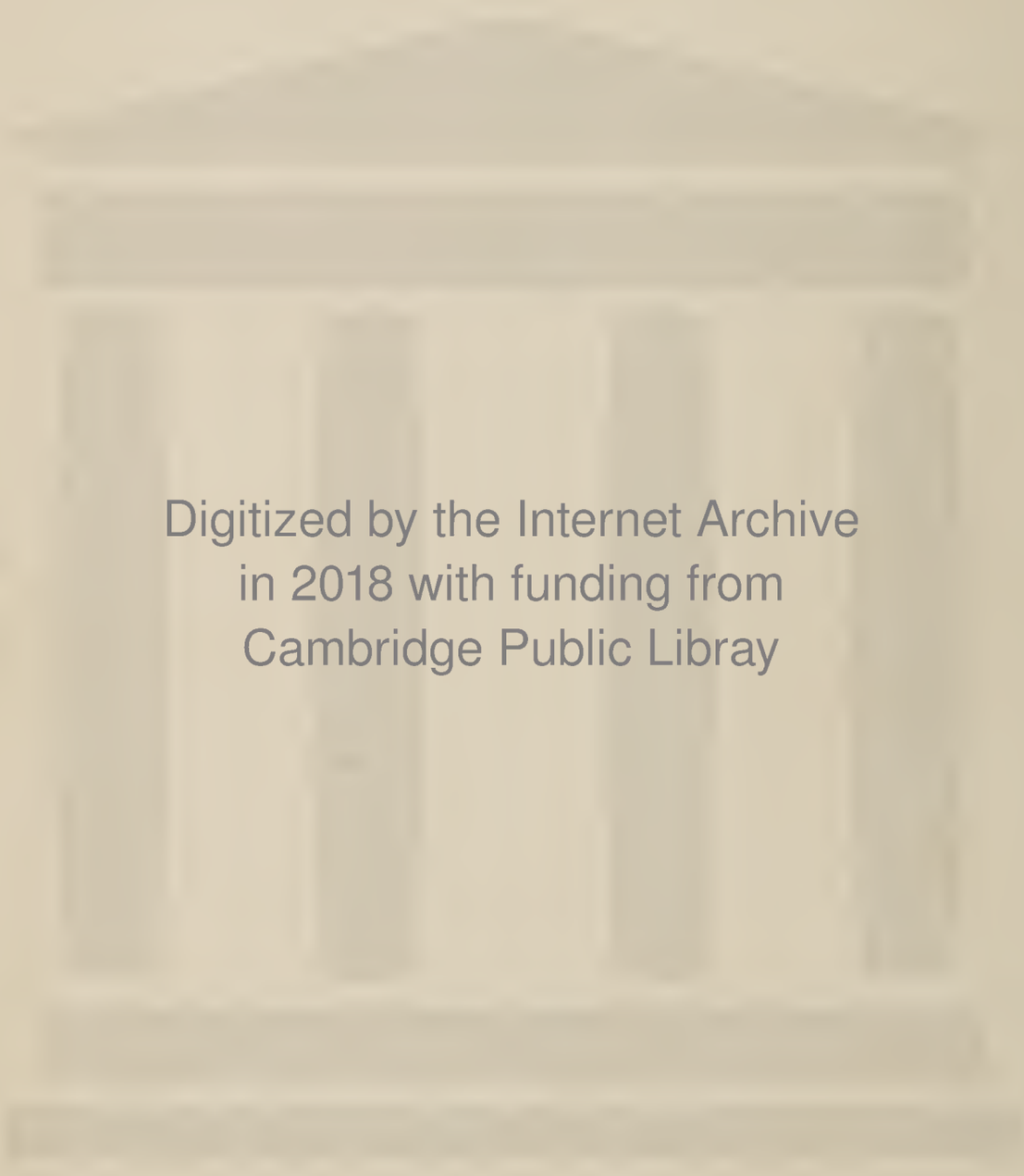

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# City of Cambridge.

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THE

# MAYOR'S ADDRESS

AT THE

Organization of the City Government,

JANUARY 2, 1888,

AND

# THE ANNUAL REPORTS

MADE TO THE CITY COUNCIL,

FOR THE YEAR 1887.

CAMBRIDGE:
HARVARD PRINTING COMPANY, PRINTERS.
1888.

Published by Order of the City Council.

# ADDRESS

OF

# HON. WILLIAM E. RUSSELL,

MAYOR.

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GENTLEMEN OF THE CITY COUNCIL:—

As servants of the people, we begin today the management of their municipal affairs for another year. Our office is a trust, with duties faithfully to be done, and with responsibilities fully to be met. Our fellow-citizens have honored us with their confidence; let us discharge our debt to them by unselfish service in their interest.

Deeply sensible of the high honor of being chosen for a fourth consecutive year to this office, I gratefully express my thanks to my fellow-citizens for the cordial support they have given me and the administration of the last three years. I especially appreciate their endorsement, after a year of grave responsibilities and unusual burdens. I trust it expresses their judgment that the administration has fairly, fully and honorably done its whole duty; I know it is their mandate that law shall be enforced, peace preserved, and public office not become a public scandal by neglect of any duty or by failure to meet any responsibility.

The past year has been distinguished by works of great public benefit to our city, and by gifts to her of extraordinary value and importance. Of these I need not now speak in detail; but it is my pleasant duty, at the earliest moment, to express the gratitude and admiration of all our citizens to him, whose great public spirit and generosity have quickened the life of our city, by bringing to her gifts, whose benefits will reach to every household. To establish a school, where children of humble parents may be helped to earn a livelihood by honorable labor; to aid the city in giving advanced education to her children; to found a library, which carries education everywhere; and, finally, to give a city hall, the centre of municipal activity,—these are grand works that enter into the very life of a city; these are enduring monuments that, so long as Cambridge shall live, will keep alive the name and memory of Frederick H. Rindge. To him I offer the thanks of this city, and with it our admiration for the public spirit, the modesty and Christian devotion of one, who has given his life and fortune to help his fellow-men.

Our special duty today is in a comprehensive way to examine and plan the work that is before us; and to suggest the principles and policy that may guide us.

As I have before said, "a wise financial policy is the first necessity of good municipal government, and the mainspring of all its work. Such a policy, I believe, requires a careful, thorough estimate of all current expenses for the year; the raising, by revenue and taxation, of an income sufficient to cover such expenses; and the careful, honest use of every dollar so spent,

keeping our expenses within our income. It does not require an economy that would neglect necessary work or much desired improvements; but if the work is done or the improvement made, that it shall be paid for out of the year's income, and not have the burden hidden in a debt. The people have a right to know and feel the expenses we incur. Such knowledge encourages care and responsibility in us, and gives to them an adequate check. It means that the tax-rate shall indicate and cover all current expenses. Great public improvements, such as a new bridge to Boston, a metropolitan system of drainage, a large trunk sewer, which are an expense, not of one year, but of many, and incurred for the benefit of many, cannot properly or possibly be paid out of the yearly income, but must be by debt, whose burden is borne by the years that receive the benefit."

Such has been the policy of the past three years. Each year has ended with the departments within their appropriations, all bills paid, no floating debt, and a substantial surplus in the treasury. The balance in the treasury at the end of the last financial year, after payment of all bills and deducting all unexpended balances from sale of bonds, and all unexpended appropriations, where the work planned has been begun but not finished, was $51,690.54. Of this balance, the City appropriated $1,000 to restore the Fay fund, following a wise rule established in 1886 of gradually restoring the principal of certain trust funds received many years ago.

No funded debt, outside of water debt, has been created the past year, except $30,000 for the con-

struction of main trunk sewers and $10,000 for work on the new Harvard Bridge. The net city debt has each year decreased, and is now more than $200,000 less than in 1884, and is $241,879.84 inside of the debt limit fixed by law.

I believe the financial policy of the past three years is right in principle, has been successful in practice, and meets the approval of the public. I strongly recommend that we adhere to it.

We have this year to face financial questions more difficult than for many years, which demand our most careful consideration. Expenses, extraordinary in number and amount, must be incurred, to carry on great public improvements already begun, and to make available the gifts of Mr. Rindge. The new bridge must be built; Front street must be widened, extended and graded; a site must be purchased for our new City Hall, and a new High School begun, if not completed. The law, public necessity and an obvious public interest leave little or no discretion to you in incurring these expenses. Our margin of indebtedness, at present about $242,000, will before the end of 1888, with the accretions to the Sinking Fund, be about $315,000. The whole of this amount will probably be required for the bridge and the extension of Front street, leaving nothing for the other expenses, that otherwise would be met by loans. Just how much these expenses may be, it is for you to determine; but that they will be large can easily be foreseen. How to meet them is the serious financial question. Two courses only are open: First, taxation; second, debt. The objection to the first is, that it places upon a single

year the burden of great public improvements that should be distributed among many years, and that it would raise the tax-rate to a point unjust to the citizens, injurious to the interests of the city, and probably beyond the limit allowed by law. The objection to the second is, that it requires legislative action, exempting this city, to some extent, from the debt limit fixed by law.

With the surplus now in the treasury, and with no unusual expenses in the various departments of the city, I believe that a considerable portion of these extraordinary expenses could be raised by taxation without an increase of the tax-rate. I would suggest that the High School building, which is likely to be erected in distinct parts covering several years, should be paid for as built, by taxation. But if all of them are incurred this year, I do not believe it is right or possible to meet them all by taxation. Relief must be asked of the Legislature. Inasmuch as the share of the expense upon Boston of building the bridge was exempted from her debt limit, and as expenses, practically beyond our control, have to an unusual amount and number fallen together upon this city,—I have little doubt that relief will be granted. I recommend, therefore, that authority be asked of the Legislature to exempt from our debt limit so much of the expense of building the new bridge as to you seems necessary and proper. If, as the year proceeds, upon a careful examination of expenses and income, it is found possible to meet all expenses without exceeding our debt limit, and with a fair and proper tax-rate, I trust that the authority granted will not be used. This fact cannot be determined till the time of presenting petitions

to the Legislature has passed. I, therefore, recommend this matter to your early consideration.

While I regret the necessity of asking for this relief, it should be remembered that it is a necessity, representing public improvements, greater in number and extent, I believe, than have ever before at one time been undertaken by any city in this state; and that today our financial condition is exceptionally strong. In one year there are undertaken the building of a new and costly bridge, the laying out of a great avenue, the purchase of a worthy site for a City Hall, the building of a High School, City Hall, Public Library and Industrial School. The portion of the expense upon the city cannot be less than $500,000, which is nearly 35 per cent of our total borrowing capacity, if we were clear of all debt. It is to this city what an expense of from five to seven millions would be to the City of Boston. Luckily it comes when the city is more than 20 per cent. within her debt limit, and when she has reduced her net city debt from 4¾ per cent. to almost 2 per cent., of the respective valuations of 1877 and 1887, which are nearly the same.

I submit for your consideration a statement in detail of the financial condition of the city.

## FINANCES.

Our liabilities at the close of the financial year (Nov. 30, 1887) were as follows:

### FUNDED CITY DEBT.

| | |
|---|---|
| Bonds outstanding . . . . . | $1,616,000 00 |
| Sinking fund for payment of same . . . . . | 428,564 59 |
| Net funded city debt . . . . . | $1,187,435 41 |

FUNDED CITY DEBT OF 1886 AND 1887 COMPARED.

| | 1886. | 1887. |
|---|---|---|
| Funded city debt . . . . | $1,696,000 00 | $1,616,000 00 |
| Sinking fund . . . . . | 467,182 12 | 428,564 59 |
| Net funded city debt | $1,228,817 88 | $1,187,435 41 |

One hundred and twenty thousand dollars of bonds have matured during the year and been paid from the sinking fund; $40,000 of bonds have been issued for construction of main trunk sewers and for the new Harvard Bridge, making a decrease of $80,000 in the funded debt. The sinking fund has decreased $38,617.53, by the payment of the bonds matured ($120,000) less the payment to the sinking fund and its income ($81,382.47). The net decrease of this debt is $41,382.47. Of the amount received from the sale of bonds about $21,000 was unexpended at the close of the year. Our borrowing capacity, as fixed by law, is $1,429,315.25, being $2\frac{1}{2}$ per cent on the average net valuation of property for the years 1885, 1886 and 1887 ($57,172,610). This is $241,879.84 in excess of our present net debt. During this year there will be paid into the sinking fund $51,145, which, with the income of the fund (about $21,000) will increase this difference to $314,024.84.

FUNDED WATER DEBT.

| | |
|---|---|
| Bonds outstanding . . . . . | $1,825,500 00 |
| Sinking fund for payment of same . . . . . | 838,597 01 |
| Net funded water debt . . . . . | $986,902 99 |

FUNDED WATER DEBT OF 1886 AND 1887 COMPARED.

| | 1886. | 1887. |
|---|---|---|
| Bonds outstanding . . . . . | $1,865,500 00 | $1,825,500 00 |
| Sinking fund for payment of same . | 892,005 97 | 838,597 01 |
| Net funded water debt . . . | $973,494 03 | $986,902 99 |

One hundred and fifty thousand dollars of bonds have matured and been paid from the sinking fund; $110,000 of bonds have been issued, of which $95,000 were on Stony Brook construction account, and $15,000 on Fresh Pond land account, making a decrease of $40,000 in the funded debt. The sinking fund has decreased $53,408.96 by the payment of $150,000 of bonds, less its receipts of $96,591.04, ($51,465 being the required payment to the sinking fund, $43,449.52 income and $1,676.52 surplus water rates). The net increase of this debt is $13,408.96. The general construction expenses of the water works, which usually are made a funded debt, have the past year been paid by its revenue. The amount was $19,563.85. Of the amount received from the sale of bonds about $20,000 was unexpended at the close of the year.

## OTHER LIABILITIES.

The indebtedness of the city, not included in the funded debt, is as follows:—

| | |
|---|---|
| Contingent note belonging to the sinking fund of the Water Works | $200,000 00 |
| Trust Funds | 25,000 00 |
| | $225,000 00 |

The note of $200,000 was given in 1883 in settlement of balances due from the city to the water sinking fund for surplus water receipts since 1865, which had been paid into the treasury instead of to it, as required by law. Payment is contingent upon the rest of that sinking fund being first exhausted.

There has been a decrease of the unfunded liabilities

of the city during the year of $7,500. Of this $6,500 was by payment of note given in 1885 for purchase of the Latin School, and $1,000 was restoring the Fay trust fund:—

| | |
|---|---|
| The net decrease of the city debt proper, (funded and unfunded) was in 1887 | $48,882 47 |
| " 1886 | 71,477 92 |
| " 1885 | 82,797 66 |
| Total net decrease since 1884 | $203,158 05 |

To this should be added the unexpended balances now in the treasury:—

| | |
|---|---|
| Received from sale of bonds for Bridge and Sewer loans and unexpended | $21,039 12 |
| The unexpended balance now in the treasury for other work begun but not completed | 32,700 00 |
| And the net balance now in the treasury over and above these balances | 50,690 54 |
| Total | $307,587 71 |
| Deducting balance in the treasury at end of 1884 | 158 50 |
| Balance | $307,429 21 |

which sum represents the improved financial condition of the city since 1885, outside of its water debt, which is a distinct account and taken care of by the revenue of that department. During these years the city has paid for many school-houses, a city stable, engine house, largely extended its cemetery, commenced the new bridge, introduced electric lighting and done much paving, in addition to the usual and increasing expenses of all its departments. The average tax-rate of the last three years has been lower than at any time since 1874.

Gentlemen of the City Council: With extraordinary burdens upon the city this year, it is satisfactory to start with her finances in a safe and sound condition. The

most important work entrusted to your charge, upon which all other work is dependent, is the management of her finances. I know that you will undertake this and all work in a prudent, conservative spirit, remembering that as the burdens of the city increase, the greater care and diligence are necessary.

Passing now to the work that is before us, let me call your attention to the important matters that will require your consideration, referring briefly to what has been accomplished.

## LIQUOR LAW.

The citizens have decided, after mature consideration and a practical experience of seven months, that licenses shall not be granted in this city for the sale of intoxicating liquor. Their vote is a command, which it is my duty to execute honestly and thoroughly. I accept the full responsibility of this duty, relying upon you to aid and sustain me. The law *has been* enforced. It *can* and *must be* enforced. It is not for us to question the wisdom of the law; it is sufficient to know that it is the law, which the people have expressly considered and distinctly approved.

The experience of the past has proved that the police are able and competent to enforce this law, and that there is no excuse for any failure. I believe that much credit is due them for a vigorous, thorough discharge of this new duty. The same earnest work and unceasing vigilance will be expected and required this year. Any officer who neglects, evades or shirks this duty, will be held to strict account.

## EXTENSION OF THE WATER WORKS.

The most important work completed the past year was the extension of our water supply to Stony Brook. This work was begun three years ago under pressure of a great necessity that demanded some additional supply to reinforce our failing Fresh Pond. Since then the work has steadily progressed till November 5, 1887, when the new supply was received into the Pond, which at that time was nearly fourteen feet below high water mark, and falling an inch a day. No better proof than this fact could be given of the wisdom and foresight of undertaking this work and of its absolute necessity. Without our Stony Brook supply the city today would be in serious trouble and threatened with a serious danger. Since its introduction the Pond has risen nearly a foot a week. This great work ensures an abundant supply of pure water for fifty years at least. The estimated cost of the work was $500,000. The amount thus far expended has been $470,695.29, besides $68,-062.63 spent in and around Fresh Pond, to make it a proper receiving basin. There remain unsettled some land and the water damages. The whole of this cost the revenue of the water works will fully meet and pay, without putting any of their expenses into taxation.

While the city rejoices in the completion of a work so great and lasting in its benefits, it is fitting that in her behalf, I should express her thanks and gratitude to all whose labors have contributed to its success, but especially to the able, faithful President of the Water Board. From the first conception of the work to its full

completion he has given his time, energy and ability unsparingly to it. In the Legislature, before the City Council and upon the Water Board, he has pressed the matter with an invincible will and commendable fidelity. But for his efforts, the plan would have failed. So long as the city shall enjoy the fruit of his labor, she will remember the service he has rendered.

## THE NEW BRIDGE TO BOSTON.

This work, which a year ago I referred to as "the one necessity, the one great public improvement upon which all our citizens are agreed," has been begun, and will be finished, it is hoped, by the end of this year. At the earnest solicitation of this city, the Legislature in May last passed an Act, compelling Boston and Cambridge to build the bridge and to share the expense. The Act appointed, as a commission to do the work, the mayors of the two cities with one person to be appointed by them. Leander Greely of Cambridge was so appointed. The Commission at once organized, commenced the work, and has since vigorously prosecuted it. Plans were prepared and afterwards approved by the Harbor and Land Commissioners. Detailed plans were then made by its engineer, Mr. Jackson. In August last a contract was made for building the stone piers, except the two abutment piers and the draw pier, at a cost of $122,820, upon the engineer's estimate of the work to be done. In December last, a contract was made for the iron superstructure, at a cost of $183,050. In awarding this contract the commissioners rejected the lowest bidder, whose works are in Cleveland, Ohio, and accepted the bid of the Boston

Bridge Company, whose works are in Cambridge. The difference between the two bids was about $9,300. The estimated cost of inspection of the work done at a distance was $3,000, making the actual difference between the bids $6,300. The Commissioners were unanimously of the opinion that much more than this amount would be saved by having the work done under their immediate supervision; and, after investigation, were satisfied that it would be done better and more promptly, besides the advantage of giving the work to our own citizens and building up a local industry. A contract has also been made for kyanized lumber for the planking of the bridge at a cost of about $10,000. All the contracts require the work to be finished by December 1st of this year. Contracts have yet to be made for the draw and draw pier, the two abutment piers, the roadway and railing. The contracts made have been at a less cost than the engineer's estimates. The cost of the work to be contracted for brings the total cost of the bridge well within the original estimate of $500,000.

In connection with the building of this bridge, a very important and necessary work will demand your most careful consideration,

## THE LAYING OUT OF FRONT STREET.

This street is our approach to the bridge, but to make it a proper avenue, it must be widened, extended, filled and graded. A contract was made in 1885, with the Cambridge Embankment Company, which requires it to give the land and fill it to grade for an extension of Front street from the Boston & Albany railroad to the

bridge. The widening of Front street, and extending it to the railroad must be done by the city. This matter was considered by the special committee on the new bridge in conference with representatives of the Embankment Company, the Boston & Albany railroad and the West End railroad towards the end of last year, but too late for the City Council to take any decisive action. Plans and estimates were made by the City Engineer, showing the cost of laying out the street 80, 90 and 100 feet wide from Main street to the railroad at grade of the railroad, and also at a grade to cross above the railroad. At grade the cost was $66,108, $95,107 and $101,358 for the respective widths. To cross above the railroad, the cost was $183,091, $222,462 and $239,061 for the respective widths. These last estimates do not include the damage to adjoining property from raising the grade. The committee and the persons consulted were unanimously of the opinion, that, while for many reasons it would be desirable to avoid a grade crossing, still, taking into consideration the great increase of the expense, the damage to adjoining property, and to the whole district, the inconvenience on a much travelled way of steep or long grades, and the fact that the railroad is and probably always will be used only for freight traffic, it was not practical to have an overhead grade. The additional cost of building intersecting streets alone would be enormous.

In their opinion I concur, regretting exceedingly that our city must suffer from having another main thoroughfare throttled by this railroad. It emphasizes the necessity of urging the Legislature to grant us some remedy

that will reach the whole evil. By vote of the City Council of last year I have petitioned the Legislature to this end.

## THE GIFTS OF MR. RINDGE.

In a most generous spirit and with rare discretion, Mr. Rindge has given the city what she most needed, and helped her where help was all important.

To carry out his purpose is the most important new work of this year. In much of it you will be called upon to take a part, as upon the city falls an active duty, to make his gifts available. I, therefore, submit for your consideration a more detailed statement of these gifts.

## THE PUBLIC LIBRARY BUILDING.

On June 14th last, Mr. Rindge sent to the City Council a communication, offering to give to the city the large and beautiful lot of land bounded by Broadway, Cambridge, Irving, and Trowbridge streets, containing 135,666 square feet, and to build upon it a suitable building for the Public Library at an expense of $75,000, — upon condition that certain appropriate inscriptions were placed therein, and also expressing the wish that a portion of the ground might be used as a play-ground. The gift was gratefully accepted, and, at his suggestion, Justin Winsor, Thomas Wentworth Higginson, Samuel L. Montague, and myself, were appointed by the City Council as a committee to confer with his representative, Francis J. Parker, and to carry out the donor's purpose. Plans were made by some of the leading architects of

the country. After careful study the committee selected the plan of Van Brunt & Howe, and this selection was approved by Mr. Rindge. This plan is of a building of stone, of fine proportion and beautiful design, with an immediate capacity of 170,000 volumes, and capable of almost indefinite extension. Besides every possible convenience of a well-appointed public library, it provides for a large memorial room, where manuscripts, war relics, and other literary and historical matter of public interest may be collected. With the aid of the public this should become a very valuable and interesting feature of the library. The plans are now being developed in detail; the building will be commenced early in the spring. It will be located, facing Broadway, in nearly the centre of the lot, which will be beautifully laid out as a common. The city engineer suggests the need of a deeper and larger sewer for the proper drainage of the lot and building, to which suggestion I ask your early attention, that there may be no delay in building the library.

## THE NEW HIGH SCHOOL.

In a communication, dated November 3, 1887, Mr. Rindge offered to give the city a large lot of land just west of the Public Library Common on Broadway, Irving, and Felton streets, for the erection of a High School building, provided the city would buy and add to the lot about 15,500 square feet of land at the corner of Broadway and Felton streets, owned by other persons, and place upon the building an appropriate inscription. The assessed valuation of the land to be bought is $4900, and of the three houses upon it $10,500. The committee on

finance of last year had some negotiation with the owners of this land, but had come to no agreement with them when the year ended. The need of a new building for the High School is imperative. As the location designated is almost the geographical centre of the city, and is close to the Public Library, which would be of great service to the school, it is admirably adapted for a High School building. I recommend that immediate action be taken to acquire the corner lots, by agreement with the owners, if possible, otherwise by right of eminent domain. Upon the city acquiring these lots, Mr. Rindge will deed to her his land.

The erection of a proper building, adequate for present and future needs, and in keeping with the Library Building, will necessarily involve a large expense. It has been suggested that it could be so planned as to be built in distinct parts, so much only as is now needed to be built at present. In this way its cost might be met without debt.

## THE INDUSTRIAL SCHOOL.

In the same communication of November 3, 1887, Mr. Rindge proposed to give a lot of land near the Library Common, erect upon it a building and equip it ready for use as an Industrial School,—"the plain arts of industry to be taught in this school." I believe this gift will be of great and far-reaching benefit; and the noble wish expressed in his letter will be fully realized, that "boys in it may learn how their arms and hands can earn food, clothing and shelter for themselves; how, after a while, they can support a family and a home; and how the

price of these blessings is faithful industry, no bad habits and wise economy." With the knowledge here acquired they will go forth into the world from this school, feeling the truth of the inscription over its door, "Work is one of our greatest blessings; every one should have an honest occupation."

The committee designated by Mr. Rindge and appointed by the City Council to carry out his purpose, have been diligently gathering information, preparatory to erecting the building. The field is a new one, and the work in it thus far has been largely experimental. It has seemed to us wise, if not absolutely necessary, carefully to consider the system of instruction and the kind of industries to be taught, before planning the building, especially as we hope this school may become a model to be followed generally. As the school may be more or less intimately connected with the public school system, a committee of conference has been appointed at our request from the School Committee. It is hoped to commence building early in the spring.

## THE NEW CITY HALL.

In the same letter he further gives a City Hall to be built upon "a worthy site," which the city is to procure. Over its door is to be this inscription, which may well serve as a guide to us and to our successors: "God has given commandments unto men. From these commandments men have framed laws by which to be governed. It is honorable and praiseworthy faithfully to serve the people by helping to administer these laws. If the laws are not enforced the people are not well governed."

No gift could have been more timely. For years our City Hall has been wholly inadequate for our purposes, and unworthy of a great city. Yet it has been impossible, under the pressure of many needs, to undertake so large a work. I am confident that this city now in a liberal spirit, befitting the generous gift, will undertake the portion of the work she has to do. No work of the year will require your earlier and more careful consideration than selecting "a worthy site" for the City Hall. There seems to be a general agreement of opinion that it should be located in the immediate neighborhood of the present building. I believe no better site can be found than directly opposite. How much land shall be taken it is for you to determine. If in your opinion the city should take the whole square bounded by the four streets, I think the citizens will sustain your decision, and future generations will rejoice in your action. It is well, however, to consider carefully whether it would not answer every purpose to take the whole frontage on Main Street and run back, say 200 feet, on Inman and Temple Streets. This would give a commanding location in the centre of a lot of 60,000 feet that never could be obstructed. Mr. Rindge has expressed his preference for the whole square as a site and his intention to spend about $200,000 on the building.

## THE DEPARTMENTS.

It has been customary for the mayor in his Inaugural Address to review in a somewhat perfunctory way, the work of the municipal departments, and to suggest to you their needs for the current year. As all this informa-

tion may be found in detail in the full and able reports of the heads of the respective departments, and as I have been obliged to dwell at some length upon other matters, it seems to me unnecessary to follow this custom.

The work of the departments without exception has been done carefully, economically, and efficiently. With much pleasure, and from a knowledge of their work for three years, I commend all the heads of departments for their able management. No city is more fortunate in the faithful service of experienced officials.

I urge your most careful examination of their reports, and I submit for your consideration these their needs and recommendations: —

*Of the School Committee:* The need of more school accommodations in Wards III and V, and the building of a new High School; and their request that the janitors of schools be placed under their control.

*Of the Water Board:* The need of further legislation to obtain land around Fresh Pond and the Pond itself.

*Of the Overseers of the Poor:* The need of an ambulance wagon, and of fire-proof accommodations for their valuable records, both of which needs seem to be imperative; and their recommendation that you consider the question of the city itself taking care of its mildly insane; and their request for a general appropriation for the expense of cases in the Cambridge Hospital.

*Of the Cemetery Commissioners:* The need of better and safer accommodations for the records of the cemetery, and of a larger receiving tomb.

*Of the Street Department:* The need of another steam-roller, the further extension of paving on Main Street,

and its request for larger appropriations for the different branches of its work.

*Of the Sewer Department:* The need of new sewers in Cambridge Street from Oxford Street to Baldwin street, and in the Belmont District; of repairs on the Binney Street sewer; and the suggestion of a possible remedy of the nuisance at the Bridge Street sewer by treatment of the sewage matter.

*Of the Police Department:* The need of an increase of the police force, and of the introduction of the Police Signal System, which last I believe should be no longer deferred. In addition to many other benefits, it furnishes an ambulance wagon much needed.

*Of the Fire Department:* The need of another steam engine, and of more signal boxes.

*Of the Department of Public Buildings:* The need of extensive repairs and changes in the Washington and Webster Grammar Schools.

*Of all departments:* The need of adequate appropriations to carry on their general work, which in this growing city is steadily increasing.

I submit, also, for your consideration the question of filling the lower Mill Pond basin. It is and has been a serious nuisance, and a constant and just subject of complaint from many living and working in its immediate neighborhood. Some measures of temporary relief were taken last year, but there can be no permanent relief till it is filled. As it will make a valuable city wharf much needed, I recommend that this work be done at once. The estimated cost of filling it is about $10,000.

*Gentlemen of the City Council:* — Our good city is stepping forth into a larger and a grander life. The blessing of God has rested upon her. She has felt the quickening touch of a generous hand, and been stirred by a noble philanthropy that has given to her "the charities that soothe, and heal, and bless," bringing Christ into the lives of men. As she wakens to renewed vigor in the work before her, as her industries increase, and her great institutions of learning and benevolence enlarge, and her people multiply and prosper, let us recognize the privilege it is to serve her; and trustfully take up its great responsibilities, and cheerfully and bravely meet all its many requisitions.

# ANNUAL REPORT

OF THE

# AUDITOR OF ACCOUNTS.

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CITY OF CAMBRIDGE,
AUDITOR'S OFFICE, Dec. 24, 1887.

*To the Honorable City Council:—*

GENTLEMEN: — In compliance with the provisions of Section 4, Chapter 1, of the city ordinances, the undersigned herewith presents the forty-first annual report of the receipts and expenditures of the City of Cambridge, for the year ending November 30th, 1887, exhibiting the same as classified in the several department accounts, with a statement of the assets and liabilities and other information.

## RECEIPTS.

The receipts of the year, as credited to the several city accounts, are as follows:—

| NO. | | | |
|---|---|---|---|
| 1. | Bridge, Harvard . . . . | $75 00 | |
| 2. | Bridges, West Boston, Cragie's, and Prison Point . . | 439 35 | |
| 3. | Cambridge Cemetery . . . | 17,229 80 | |
| 4. | Cambridge Public Library . | 1,534 34 | |
| 5. | Cemetery Fund . . . . | 1,550 00 | |
| 6. | City Buildings, Care and Repairs . . . . . | 2,503 74 | |
| 7. | City Lands . . . . . | 14,827 66 | |
| 8. | Engineering . . . . . | 1,500 00 | |
| 9. | Fire Department . . . . | 334 46 | |
| 10. | Incidental Expenses . . . | 3,802 25 | |
| 11. | Interest . . . . . | 2,983 58 | |
| 12. | Lighting Streets . . . . | 73 58 | |
| | Amount carried forward . . | | $46,853 76 |

| | | | |
|---|---|---|---|
| | Amount brought forward . | $46,853 76 | |
| 13. | Loan, Bridge. . . . . | 10,000 00 | |
| 14. | Loan, Sewer . . . . . | 30,000 00 | |
| 15. | Loan, Temporary . . . . | 555,000 00 | |
| 16. | Loan, Water . . . . . | 110,000 00 | |
| 17. | Notes, Receivable . . . . | 7,651 39 | |
| 18. | Pauper Department . . . | 3,894 32 | |
| 19. | Pauper Department, Almshouse . . . . . | 7,669 44 | |
| 20. | Pauper Department, House Offal . . . . . | 6,856 59 | |
| 21. | Police Department . . . . | 5,620 54 | |
| 22. | School Department, Salaries | 869 13 | |
| 23. | School Department, Text Books and Supplies . . . | 338 99 | |
| 24. | School Houses, Care and Repairs . . . . . | 358 56 | |
| 25. | School Houses, New and Furniture . . . . . | 310 00 | |
| 26. | Sewers, Construction . . . | 20,474 70 | |
| 27. | Sewers, Construction, Bath Street . . . . . | 279 00 | |
| 28. | Sewers, Maintenance . . . | 1,489 75 | |
| 29. | Shade Trees and Public Grounds . . . . . | 46 41 | |
| 30. | Sinking Funds, Commissioners of . . . . . | 120,000 00 | |
| 31. | State Aid . . . . . | 11,026 00 | |
| 32. | Stationery and Printing . . | 2 00 | |
| 33. | Street Department, Paving . | 5,882 07 | |
| 34. | Street Department, Repairs . | 2,563 35 | |
| 35. | Street Department, Watering | 12,241 00 | |
| 36. | Tax, Corporation . . . . | 55,163 51 | |
| 37. | Tax, National Bank . . . | 17,613 97 | |
| 38. | Tax, Lien Account . . . | 609 28 | |
| 39. | Taxes of 1881 . . . . . | 22 00 | |
| 40. | Taxes of 1882 . . . . . | 51 96 | |
| 41. | Taxes of 1883 . . . . . | 132 08 | |
| | Amount carried forward . . | | $1,033,019 80 |

| | | | |
|---|---|---|---|
| | Amount brought forward . . . . . | | $1,033,019 80 |
| 42. | Taxes of 1884 . . . . . | 415 76 | |
| 43. | Taxes of 1885 . . . . . | 3,386 40 | |
| 44. | Taxes of 1886 . . . . . | 60,638 20 | |
| 45. | Taxes of 1887 . . . . . | 911,523 60 | |
| 46. | Water Works, Construction | 7 50 | |
| 47. | Water Works, Construction, Fresh Pond . . . . . | 112 50 | |
| 48. | Water Works, Construction, Stony Brook . . . . . | 1,141 72 | |
| 49. | Water Works, Interest on Water Loan, | 172 22 | |
| 50. | Water Works, Maintenance | 861 19 | |
| 51. | Water Works, Rates, Fines, etc., . . . . . | 211,300 82 | |
| 52. | Water Works, Trustees of Sinking Fund . . . . . | 150,000 00 | |
| 53. | Water Works, Supplies . . | 6,155 09 | |
| | | | 1,345,715 00 |
| | | | $2,378,734 80 |

## EXPENSES.

The disbursements of the year, as charged to the several city accounts, are as follows:—

| NO. | | | |
|---|---|---|---|
| 1. | Abatements, Taxes . . . | $15,443 74 | |
| 2. | Bridge, Harvard . . . . | 2,970 18 | |
| 3. | Bridges, . . . . . | 3,496 76 | |
| 4. | Bridges, W. B. C. and P. P. | 7,307 47 | |
| 5. | Cambridge Cemetery . . . | 14,745 98 | |
| 6. | Cambridge Public Library . | 8,532 65 | |
| 7. | Cemetery Fund, Trustees of | 1,550 00 | |
| 8. | City Buildings, Care and Repairs . . . . . | 10,496 49 | |
| 9. | Discounts, Taxes . . . . | 26,054 53 | |
| 10. | Engineering . . . . . | 7,191 17 | |
| 11. | Fire Department . . . . | 51,084 57 | |
| | Amount carried forward . . | | $148,873 54 |

| | | | |
|---|---|---|---|
| | Amount brought forward . | $148,873 54 | |
| 12. | Fire Department, New Building . . . . . | 10,045 52 | |
| 13. | Health Department . . . | 3,119 07 | |
| 14. | Incidental Expenses . . . | 29,638 75 | |
| 15. | Interest . . . . . | 112,967 74 | |
| 16. | Lighting Streets . . . . | 37,833 54 | |
| 17. | Loan, High School . . . | 6,500 00 | |
| 18. | Loan, Low Land . . . . | 120,000 00 | |
| 19. | Loan, Temporary . . . . | 555,000 00 | |
| 20. | Loan, Water . . . . . | 150,000 00 | |
| 21. | Pauper Department . . . | 24,225 17 | |
| 22. | Pauper Department, Almshouse . . . . . | 23,443 11 | |
| 23. | Pauper Department, House Offal . . . . . | 15,422 29 | |
| 24. | Police Department . . . | 80,223 88 | |
| 25. | Salaries . . . . . | 26,458 33 | |
| 26. | School Department, Drawing Schools . . . . . | 1,074 64 | |
| 27. | School Department, Evening Schools . . . . . | 1,068 84 | |
| 28. | School Department, Incidental Expenses . . . . . | 996 86 | |
| 29. | School Department, Salaries | 172,135 06 | |
| 30. | School Department, Text Books and Supplies . . . | 10,992 00 | |
| 31. | School Houses, Care and Repairs . . . . . | 38,905 58 | |
| 32. | School Houses, New and Furniture . . . . . | 9,304 74 | |
| 33. | School Houses, Webster Completion . . . . . | 1,430 64 | |
| 34. | Sewers, Construction . . . | 28,815 89 | |
| 35. | Sewers, Construction, Bath Street . . . . . | 8,344 70 | |
| 36. | Sewers, Construction, Belmont . . . . . | 25,130 20 | |
| | Amount carried forward . . | | $1,641,950 09 |

| | | | |
|---|---|---|---|
| Amount brought forward . . . . . | | | $1,641,950 09 |
| 37. | Sewers, Maintenance . . . | 14,587 64 | |
| 38. | Shade Trees and Public Grounds . . . . . | 4,924 68 | |
| 39. | Sinking Funds . . . . . | 59,695 00 | |
| 40. | State Aid . . . . . | 12,869 00 | |
| 41. | Stationery and Printing . . | 2,995 19 | |
| 42. | Street Department, Land for City Yard . . . . . | 9,999 78 | |
| 43. | Street Department, Paving . | 15,011 51 | |
| 44. | Street Department, Paving Harvard Street . . . . | 3,000 00 | |
| 45. | Street Department, Paving Main Street . . . . . | 16,000 98 | |
| 46. | Street Department, North River Flagging Stone . . | 1,080 00 | |
| 47. | Street Department, Repairs | 89,925 48 | |
| 48. | Street Department, Repairs Bulkhead, Mt. Auburn Street | 2,974 30 | |
| 49. | Street Department, Steam Roller . . . . . | 5,000 00 | |
| 50. | Street Department, Watering | 20,326 05 | |
| 51. | Tax, County . . . . . | 32,785 33 | |
| 52. | Tax, National Bank . . . | 6,223 81 | |
| 53. | Tax, Lien Account . . . | 86 65 | |
| 54. | Tax, State . . . . . | 70,110 00 | |
| 55. | Water Works, Abatements . | 4,321 96 | |
| 56. | Water Works, Construction | 19,563 85 | |
| 57. | Water Works, Construction, Fresh Pond . . . . . | 11,526 00 | |
| 58. | Water Works, Construction, Stony Brook . . . . . | 111,301 86 | |
| 59. | Water Works, Interest on Water Loan . . . . . | 97,355 00 | |
| 60. | Water Works, Maintenance | 37,610 62 | |
| 61. | Water Works, Rates, Fines, etc. | 1,789 82 | |
| 62. | Water Works, Sinking Funds | 53,141 52 | |
| 63. | Water Works, Supplies . . | 4,714 05 | |
| | | | 708,920 08 |
| | | | $2,350,870 17 |

| | | |
|---|---|---|
| Total Receipts for the year . . | | $2,378,734 80 |
| Add the amount in treasury December 1st, 1886 . . . . . | | $97,204 05 |
| | | $2,475,938 85 |
| Total expenditures for the year . | | 2,350,870 17 |
| Balance in treasury November 30th, 1887 . . . . . | | $125,068 68 |
| From which should be deducted the balance unexpended from sale of bonds— | | |
| Bridge Loan . . . . . | $7,104 82 | |
| Sewer Loan . . . . . | 13,934 30 | |
| Fresh Pond Loan . . . . | 16,606 70 | |
| Stony Brook Loan . . . . | 3,032 32 | |
| And balance unexpended on account of contracts begun but not completed— | | |
| Almshouse Buildings . . . | 5,500 00 | |
| Engine House, Portland St. . | 7,000 00 | |
| School House, Putnam . . . | 9,000 00 | |
| Sea Wall, River St. . . . | 4,500 00 | |
| School House Lot, Linnæan St. | 6,700 00 | |
| | | $73,378 14 |
| Leaving a net balance of . . . | | $51,690 54 |

Of the City Funded Debt there have matured during the year

| | |
|---|---|
| Low Land Loan Bonds . . . . . | $120,000 00 |

There has been an addition to the City Funded Debt during the year of $40,000.00, caused by the issue of two registered bonds, as follows:

| | |
|---|---|
| One, a Bridge Loan, dated Oct. 1, 1887, payable in thirty years, at an annual interest of 4 per cent, (to pay for Harvard Bridge between Cambridge and Boston,) . . . . . | $10,000 00 |
| Amount carried forward . . . . . | $10,000 00 |

| | |
|---|---|
| Amount brought forward . . . . . | $10,000 00 |
| The other, a Sewer Loan, dated Nov. 1, 1887, payable in twenty years, at an annual interest of 4 per cent, (to pay for trunk sewers from the Belmont and North Avenue districts,) . . | $30,000 00 |
| | $40,000 00 |

| | |
|---|---|
| Of the Water Debt of the city there have matured during the year bonds amounting to . . | $150,000 00 |

| | |
|---|---|
| There has been an addition to the Water Debt of the city during the year of $110,000.00, caused by the issue of three registered bonds, payable in twenty years, at an annual interest of 4 per cent, to pay for the Stony Brook Additional Water Supply . . . . . | $75,000 00<br>20,000 00 |
| Land on the borders of Fresh Pond . . . . | 15,000 00 |
| | $110,000 00 |

## THE CITY DEBT.

| | | 1886. | 1887. |
|---|---|---|---|
| Funded City Loan . . . . . | | $1,696,000 00 | $1,616,000 00 |
| Note to Cambridge Savings Bank | | 6,500 00 | |
| Contingent Loan, being a City Note to Trustees of Sinking Fund of Water Works . . . . . | | 200,000 00 | 200,000 00 |
| Trust Funds:— | | | |
| Dowse Institute Fund . | $10,000 | | |
| Sanders Temp. Fund . | 10,000 | | |
| Daniel White Charity . | 5,000 | | |
| Fay Fund . . . . . | 1,000 | | |
| | | 26,000 00 | 26,000 00 |
| Gross City Debt . . . . . | | $1,928,500 00 | $1,842,000 00 |
| Less amount in City Sinking Fund | | 467,182 12 | 428,564 59 |
| | | $1,461,317 88 | $1,413,435 41 |
| The decrease of the net city debt from last year | | | $47,882 47 |

## THE WATER WORKS DEBT.

| | 1886. | 1887. |
|---|---|---|
| Funded Water Loan, . . . . | $1,865,500 00 | $1,825,500 00 |
| Less Water Sinking Fund, . . | 892,005 97 | 838,597 01 |
| | $973,494 03 | $986,902 99 |
| The increase of the net water debt from last year, | | $13,408 96 |

## THE FUNDED CITY DEBT.

Following is a statement of the total funded debt of the city, with the dates of maturity and rates of interest thereon:—

**Bridge Loan.**

| | | |
|---|---|---|
| Due Oct. 1, 1917, int. 4 per cent, 30 yrs. . . . | | $10,000 00 |

**City Loan.**

| | | | | | |
|---|---|---|---|---|---|
| Due April 1, 1889, int. 5 per cent, | 25 | yrs. | | $100,000 | |
| July 1, 1890, " 6 | " | 20 | " | 20,000 | |
| Jan. 1, 1893, " 5 | " | 30 | " | 150,000 | |
| | | | | | $270,000 00 |

**Land Loan.**

| | | |
|---|---|---|
| Due July 1, 1893, int. 6 per cent, 20 yrs. . . . | | $10,000 00 |

**Paving Loan.**

| | | | | | |
|---|---|---|---|---|---|
| Due July 1, 1893, int. 6 per cent, | 20 | yrs. | | $100,000 | |
| July 1, 1894, " 6 | " | 20 | " | 130,000 | |
| July 1, 1895, " 6 | " | 20 | " | 25,000 | |
| | | | | | $255,000 00 |

**Sewer Loan.**

| | | | | | |
|---|---|---|---|---|---|
| Due Oct. 1, 1895, int. 6 per cent, | 20 | yrs. | | $20,000 | |
| July 1, 1896, " 6 | " | 20 | " | 29,000 | |
| July 1, 1903, " 6 | " | 30 | " | 136,000 | |
| July 1, 1904, " 6 | " | 30 | " | 295,000 | |
| July 1, 1905, " 6 | " | 30 | " | 144,000 | |
| Amounts carried forward . . | | | | $624,000 | $545,000 00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Amounts brought forward . . . | | | | | | $624,000 | $545,000 00 |
| Due Nov. 1, 1896, | " | 3½ | " | 10 | " | 25,000 | |
| Nov. 1, 1907, | " | 4 | " | 20 | " | 30,000 | |
| | | | | | | | $679,000 00 |

**Street Loan.**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Due July 1, 1893, int. 6 per cent, 20 yrs. . . . | | | | | | | 13,000 00 |

**Street Widening Loan.**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Due July 1, 1903, int. 6 per cent, 30 yrs. | | | | | | $10,000 | |
| July 1, 1904, | " | 6 | " | 30 | " | 90,000 | |
| July 1, 1905, | " | 6 | " | 30 | " | 14,000 | |
| | | | | | | | $114,000 00 |

**Municipal Loan.**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Due April 1, 1895, int. 4 per cent, 10 yrs. . . . | | | | | | | $200,000 00 |

**Cambridge Cemetery Fund.**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Due Aug. 1, 1905, int. 4 per cent, 20 yrs. . . . | | | | | | | $65,000 00 |
| Total funded City Loan . . . . . | | | | | | | $1,616,000 00 |

**Water Loan.**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Due April 1, 1888, int. 6 per cent, 20 yrs. | | | | | | $175,000 | |
| May 1, 1889, | " | 6 | " | 20 | " | 112,000 | |
| July 1, 1890, | " | 6 | " | 20 | " | 60,000 | |
| May 1, 1891, | " | 6 | " | 20 | " | 50,000 | |
| July 1, 1892, | " | 6 | " | 20 | " | 335,000 | |
| April 1, 1894, | " | 6 | " | 20 | " | 150,000 | |
| Nov. 1, 1894, | " | 4 | " | 10 | " | 36,000 | |
| April 1, 1895, | " | 6 | " | 20 | " | 160,000 | |
| July 1, 1896, | " | 6 | " | 20 | " | 103,000 | |
| July 1, 1897, | " | 6 | " | 20 | " | 16,000 | |
| July 1, 1898, | " | 5 | " | 20 | " | 12,500 | |
| May 1, 1910, | " | 4 | " | 25 | " | 288,000 | |
| April 1, 1911, | " | 3½ | " | 25 | " | 100,000 | |
| July 1, 1911, | " | 3½ | " | 25 | " | 75,000 | |
| Nov. 1, 1906, | " | 3½ | " | 20 | " | 43,000 | |
| Oct. 1, 1907, | " | 4 | " | 20 | " | 75,000 | |
| Oct. 1, 1907, | " | 4 | " | 20 | " | 15,000 | |
| Nov. 1, 1907, | " | 4 | " | 20 | " | 20,000 | |
| Total funded Water Debt . . . . . | | | | | | | $1,825,500 00 |

**Recapitulation.**

| | |
|---|---|
| Amount of funded City Loan upon which interest is at 6 per cent | $1,036,000 00 |
| Amount of funded City Loan upon which interest is at 5 per cent | 250,000 00 |
| Amount of funded City Loan upon which interest is at 4 per cent | 305,000 00 |
| Amount of funded City Loan upon which interest is at $3\frac{1}{2}$ per cent | 25,000 00 |
| | $1,616,000 00 |

| | | |
|---|---|---|
| Amount of Water Loan upon which interest is at 6 per cent | $1,161,000 | |
| Amount of Water Loan upon which interest is at 5 per cent | 12,500 | |
| Amount of Water Loan upon which interest is at 4 per cent | 434,000 | |
| Amount of Water Loan upon which interest is at $3\frac{1}{2}$ per cent | 218,000 | |
| | | $1,825,500 00 |

The following is a statement of the temporary loans negotiated during the year and the rates of interest on the same:—

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Jan. 14, | 1887, | $50,000, | int. | $3\frac{1}{2}$ | per cent, | payable | Oct. 10, | 1887. |
| Feb. 10, | " | 60,000, | " | $3\frac{3}{4}$ | " | " | " 10, | " |
| Mch. 10, | " | 50,000, | " | $3\frac{5}{8}$ | " | " | " 11, | " |
| April 1, | " | 125,000, | " | $3\frac{7}{8}$ | " | " | " 11, | " |
| June 22, | " | 50,000, | " | $4\frac{1}{2}$ | " | " | " 12, | " |
| July 9, | " | 45,000, | " | $4\frac{3}{4}$ | " | " | " 12, | " |
| July 12, | " | 50,000, | " | $4\frac{7}{8}$ | " | " | " 12, | " |
| Aug. 19, | " | 25,000, | " | $5\frac{1}{2}+\frac{1}{16}$ | " | " | " 15, | " |
| Aug. 19, | " | 50,000, | " | 6 | " | " | " 12, | " |
| Sept. 8, | " | 50,000, | " | 5 | " | " | " 11, | " |
| | | $555,000 | | | | | | |

## ASSETS.

| | |
|---|---|
| Cemeteries | $79,750 00 |
| Debts due the City, consisting of Taxes, Sewer and Sidewalk Assessments and Miscellaneous Bills | 153,592 74 |
| Fire Apparatus | 76,000 00 |
| Public Buildings and Lands | 412,000 00 |
| School Houses and Lands | 716,000 00 |
| Sinking Funds | 1,267,161 60 |
| Water Works | 2,500,000 00 |
| | $5,204,504 34 |

## LIABILITIES.

| | |
|---|---|
| Bonds | $3,441,500 00 |
| Notes | 200,000 00 |
| Trust Funds | 26,000 00 |
| | $3,667,500 00 |

Respectfully submitted,

HARRY T. UPHAM,

*Auditor of Accounts,*

# APPROPRIATIONS AND EXPENDITURES.

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The Amount of the Several Appropriations Made by the City Council During the Year — The Transfers from One Appropriation to Another — The Amount Received into the City Treasury from all Sources — The Expenditures in Detail under Each Appropriation, and the Unexpended Balances, Nov. 30, 1887.

### Abatements, Taxes.

| | |
|---|---|
| Amount appropriated | $15,000 00 |
| Amount transferred to | 600 00 |
| | $15,600 00 |
| Less amount transferred from | 100 00 |
| | $15,500 00 |

EXPENDED.

| | |
|---|---|
| For abatement of taxes, as per item No. 1 of expenses | $15,443 74 |
| Balance unexpended | $56 26 |

### Bridge, Harvard.

| | |
|---|---|
| Amount appropriated | $100,000 00 |
| Revenue | 75 00 |
| | $100,075 00 |

RECEIVED.

| | | |
|---|---|---|
| For premium on bond, as per item No. 1 of receipts | $75 00 | |

EXPENDED.

| | | |
|---|---|---|
| For Advertising | $119 11 | |
| Building engineer's office | 150 00 | |
| Car-fares, boat-hire, etc. | 23 49 | |
| Draughting table | 6 50 | |
| Framing plans | 2 12 | |
| Fuel | 3 13 | |
| Hardware, tools, etc. | 22 55 | |
| Instruments and repairs | 13 37 | |
| Lumber | 10 80 | |
| Office fittings | 4 50 | |
| Painting | 5 00 | |
| Poles | 6 50 | |
| Amounts carried forward | $367 07 | $100,075 00 |

| | | |
|---|---|---|
| Amounts brought forward . . | $367 07 | $100,075 00 |
| For Printing . . . . . | 24 75 | |
| Recording permit . . . . . | 1 20 | |
| Row-boat and oars . . . . . | 27 50 | |
| Salaries:—W. Jackson, engineer | 499 98 | |
| John E. Cheney, ass't engineer . . . . . | 250 00 | |
| Walter H. French, secretary | 375 00 | |
| S. D. Tinkham, draughtsman | 34 12 | |
| Geo. E. Currier, assistant draughtsman . . . . . | 26 00 | |
| Frank L. Locke . . . . | 14 63 | |
| M. G. Woodward, leveler . | 46 25 | |
| Wm. J. Casey, axe-man . | 60 00 | |
| E. K. Garvin, inspector . . | 90 00 | |
| N. S. Brock, transit-man . | 252 00 | |
| T. J. Conlan, aid . . . . | 9 00 | |
| Shields and Carroll, contract for masonry piers . . . . . | 822 72 | |
| Stationery . . . . . | 61 33 | |
| Stove . . . . . | 7 59 | |
| Typewriting . . . . . | 1 04 | |
| As per item No. 2 of expenses . . . | | $2,970 18 |
| Balance unexpended . . . . | | $97,104 82 |

**Bridges.**

| | |
|---|---|
| Amount appropriated . . . . . | $4,000 00 |
| Amount transferred to . . . . . | 500 00 |
| | $4,500 00 |
| Less amount transferred from . . . . . | 1,000 00 |
| | $3,500 00 |

EXPENDED.

| | | |
|---|---|---|
| For Hardware and tools . . . . . | $7 95 | |
| Labor . . . . . | 2,420 94 | |
| Amounts carried forward . . . | $2,428 89 | $3,500 00 |

| | | |
|---|---|---|
| Amounts brought forward . . . | $2,428 89 | $3,500 00 |
| For Lumber . . . . . | 1,054 03 | |
| Printing . . . . . | 2 25 | |
| Stove-work . . . . . | 6 89 | |
| Supplies . . . . . | 4 70 | |
| As per item No. 3 of expenses . . . | | $3,496 76 |
| Balance unexpended . . . . | | $3 24 |

**Bridges, West Boston, Cragie's and Prison Point.**

| | |
|---|---|
| Amount appropriated . . . . . | $7,700 00 |
| Estimated revenue . . . . . | 300 00 |
| Surplus revenue . . . . . | 139 35 |
| | $8,139 35 |

RECEIVED.

| | |
|---|---|
| For sundries, as per item No. 2 of receipts . . . . . | $439 35 |

EXPENDED.

| | | |
|---|---|---|
| For Cotton-hose . . . . . | $2 40 | |
| Directories . . . . . | 4 00 | |
| Electric lights . . . . . | 1,186 25 | |
| Fares, clerk . . . . . | 5 17 | |
| Fuel . . . . . | 195 67 | |
| Hardware, tools and repairs . | 68 84 | |
| Insurance . . . . . | 47 50 | |
| Iron and steel . . . . . | 14 43 | |
| Labor, as per pay-roll . . . | 1,947 44 | |
| " cleaning bridge . . . | 92 97 | |
| Lumber . . . . . | 1,125 62 | |
| Oak piles . . . . . | 42 00 | |
| Oil . . . . . | 3 30 | |
| Paving . . . . . | 301 17 | |
| Repairs, Carpenter work . . | 689 75 | |
| " Iron work . . . . | 374 35 | |
| " Mason work . . . | 11 37 | |
| Amounts carried forward . . | $6,112 23 | $8,139 35 |

| | | |
|---|---|---|
| Amounts brought forward . | $6,112 23 | $8,139 35 |
| For Repairs, Painting . . . . | 9 22 | |
| " Plumbing . . . . | 4 64 | |
| " Rubber stamp . . | 1 50 | |
| Salary, Wm. J. Marvin, commissioner . . . | 500 00 | |
| " C. S. Parsons, clerk . | 100 00 | |
| Salt . . . . . | 8 12 | |
| Sand . . . . . | 7 50 | |
| Stationery . . . . . | 21 12 | |
| Stone and bricks . . . . . | 27 48 | |
| Substitute for N. E. Story . | 16 67 | |
| Supplies . . . . . | 11 49 | |
| Teaming . . . . . | 60 00 | |
| Water . . . . . | 27 50 | |
| Watering roadway . . . . | 400 00 | |
| As per item No. 4 of expenses . | $7,307 47 | $7,307 47 |
| Balance unexpended . . | | $831 88 |

## Cambridge Cemetery.

| | |
|---|---|
| Estimated revenue . . . . . | $15,000 00 |
| Surplus Revenue . . . . . | $2,229 80 |
| | $17,229 80 |

RECEIVED.

| | | |
|---|---|---|
| For Burial fees . . . . . | $3,032 68 | |
| Care of lots . . . . . | 3,930 03 | |
| Foundations, brick graves, etc. | 1,344 41 | |
| Grass and hay . . . . . | 109 70 | |
| Interest on cemetery fund . | 513 00 | |
| Lots and graves . . . . . | 7,661 25 | |
| Posts and lettering . . . . | 85 25 | |
| Removals . . . . . | 90 00 | |
| Rent of house . . . . . | 183 30 | |
| Repairs, etc., on Dana tomb . | 120 93 | |
| Amounts carried forward . . | $17,070 55 | $17,229 80 |

| | | |
|---|---|---|
| Amounts brought forward . | $17,070 55 | $17,229 80 |
| For Sundries . . . . . | 43 25 | |
| Wood . . . . . | 116 00 | |
| As per item No. 3 of receipts . . | $17,229 80 | |

EXPENDED.

| | | |
|---|---|---|
| For Account books . . . . . | $54 37 | |
| Bricks . . . . . | 70 00 | |
| Car-tickets . . . . . | 20 00 | |
| Carpenter work . . . . . | 89 15 | |
| Clerical service . . . . . | 177 50 | |
| Covering stones . . . . . | 92 62 | |
| Desk . . . . . | 20 00 | |
| Fuel . . . . . | 49 50 | |
| Granite posts . . . . . | 165 25 | |
| " roller . . . . . | 20 00 | |
| Hay and grain . . . . . | 70 00 | |
| Hardware, tools and repairs | 163 54 | |
| Horse-shoeing . . . . . | 31 36 | |
| Labor, as per pay-rolls . . . | 11,286 96 | |
| " extra . . . . . | 9 00 | |
| Lumber, lime and cement . | 140 83 | |
| Manure . . . . . | 133 29 | |
| Marble slabs and lettering . | 344 25 | |
| Plants and grass-seed . . . | 248 64 | |
| Postage . . . . . | 45 00 | |
| Printing . . . . . | 47 25 | |
| Repairs, harness . . . . | 7 00 | |
| " lawn-mower . . . | 1 50 | |
| " office furniture . . | 3 90 | |
| " roof . . . . . | 12 06 | |
| " wagon . . . . . | 20 00 | |
| Salary, Supt. J. K. Farwell . | 541 65 | |
| " " Chas. S. Childs | 600 00 | |
| " Clerk, W. W. Pike . | 50 00 | |
| Stationery . . . . . | 29 92 | |
| Amounts carried forward . . | $14,544 54 | $17,229 80 |

| | | |
|---|---|---|
| Amounts brought forward . | $14,544 54 | $17,229 80 |
| For Supplies and Sundries . . . | 25 95 | |
| Teaming . . . . . | 17 50 | |
| Telephone, rent . . . . . | 54 00 | |
| Uniforms . . . . . | 32 00 | |
| Watering street . . . . . | 58 00 | |
| Water supply . . . . . | 13 99 | |
| As per item No. 5 of expenses . . . . . | | $14,745 98 |
| Balance unexpended . . . . . | | $2,483 82 |

**Cambridge Public Library.**

| | |
|---|---|
| Amount appropriated . . . . . | $7,000 00 |
| Estimated revenue . . . . . | 1,500 00 |
| Surplus revenue . . . . . | 34 34 |
| | $8,534 34 |

RECEIVED.

| | | |
|---|---|---|
| For Catalogues and fines . . . | $198 02 | |
| Dog licenses . . . . . | 1,336 32 | |
| As per item No. 4 of receipts . . | $1,534 34 | |

EXPENDED.

| | | |
|---|---|---|
| For Books, periodicals, etc. . . . | $1,985 52 | |
| Binding books . . . . . | 509 67 | |
| Cards . . . . . | 44 00 | |
| Carpeting . . . . . | 25 78 | |
| Catalogue . . . . . | 1,560 23 | |
| Dating-stamp . . . . . | 8 40 | |
| Directory . . . . . | 2 50 | |
| Gas . . . . . | 281 99 | |
| Ice . . . . . | 9 00 | |
| Insurance . . . . . | 231 00 | |
| Printing . . . . . | 136 45 | |
| Rent . . . . . | 1,000 00 | |
| Repairs . . . . . | 54 00 | |
| Amounts carried forward . . | 5,848 54 | $8,534 34 |

| | | |
|---|---|---|
| Amounts brought forward . | $5,848 54 | $8,534 34 |
| For Salary, Librarian, A. L. Hayward . . . . . | 790 95 | |
| " Assistants . . . . | 1,289 30 | |
| " Janitor, John Little . | 525 00 | |
| Stationery and postage . . | 59 12 | |
| Sundries . . . . . | 17 74 | |
| Watering street . . . . . | 2 00 | |
| As per item No. 6 of expenses . . . . . | | $8,532 65 |
| Balance unexpended . . . . . | | $1 69 |

**Cemetery Fund.**

| | |
|---|---|
| Amount of fund Nov. 30, 1886 . . . . . | $8,975 00 |

RECEIVED.

| | |
|---|---|
| For perpetual care of lots in Cambridge Cemetery as per item No. 5 of receipts . . . . . | $1,550 00 |
| Amount of fund Nov. 30, 1887 . . . . . | $10,525 00 |
| " " Interest accumulations . . . . . | 253 71 |
| | $10,778 71 |

This fund is held in trust by the Committee on Finance, and is invested as follows: —

| | | |
|---|---|---|
| Cambridge bonds . . . . | $9,000 00 | |
| Cambridge Savings Banks . | 1,778 71 | $10,778 71 |

**City Buildings, Care and Repairs.**

| | |
|---|---|
| Amount appropriated . . . . . | $8,050 00 |
| Estimated revenue . . . . . | 2,450 00 |
| Surplus revenue . . . . . | 53 74 |
| | $10,553 74 |

RECEIVED.

| | | |
|---|---|---|
| For Fence, one-half expense . . | $12 00 | |
| Gas used in rented rooms . . | 18 40 | |
| Amounts carried forward . . | $30 40 | $10,553 74 |

| | | |
|---|---|---|
| Amounts brought forward . | $ 30 40 | $10,553 74 |
| For Rent of Armories . . . . | 800 00 | |
| Rent of District Court-room . | 350 00 | |
| Rent of Everett Athenæum . | 500 00 | |
| Rent of tenements to firemen | 208 34 | |
| Rent of Ward Room . . . | 10 00 | |
| Rent of office and shop to Water Works . . . . . | 600 00 | |
| Sale of old shed . . . . . | 5 00 | |
| As per item No. 6 of receipts . . | $2,503 74 | |

## City Hall.

EXPENDED.

| | | |
|---|---|---|
| For Awnings . . . . . | $28 25 | |
| Clocks and repairs . . . . | 47 50 | |
| Conductor . . . . . | 10 38 | |
| Dusters, brushes and brooms | 42 69 | |
| Fuel . . . . . | 239 43 | |
| Gas . . . . . | 463 99 | |
| Gas-fittings, etc. . . . . | 59 25 | |
| Hardware, tools, etc. . . . | 41 99 | |
| Ice . . . . . | 68 75 | |
| Labor, cleaning, etc. . . . | 542 91 | |
| Mats and rugs . . . . . | 33 45 | |
| Paper and hanging . . . . | 17 76 | |
| Repairs, Boiler . . . . . | 13 30 | |
| Carpenter work . . | 654 98 | |
| Mason . . . . . | 128 85 | |
| Office furniture . . | 46 71 | |
| Painting and glazing | 310 10 | |
| Plumbing . . . . | 7 87 | |
| Radiator . . . . | 3 10 | |
| Roof . . . . . | 43 60 | |
| Whitening . . . | 9 00 | |
| Salary, C. A. Gay, janitor . | 1,202 46 | |
| Screen-doors . . . . . | 12 50 | |
| Amounts carried forward . . | $4,028 82 | $10,553 74 |

| | | | |
|---|---|---|---|
| Amounts brought forward . | | $4,028 82 | $10,553 74 |
| For Shades . . . . . | | 6 00 | |
| Steam-fittings . . . . . | | 10 26 | |
| Stove, etc. . . . . | | 21 55 | |
| Supplies . . . . . | | 80 20 | |
| | | $4,146 83 | |

Central Square Building:—

| | | | |
|---|---|---|---|
| For Awnings . . . . . | $ 17 50 | | |
| Fuel . . . . . | 447 93 | | |
| Gas . . . . . | 260 69 | | |
| Gas-fittings . . . . | 25 06 | | |
| Hardware, tools, etc. | 19 21 | | |
| Mats . . . . . | 18 43 | | |
| Repairs, carpenter . | 89 33 | | |
| Mason work . . | 75 95 | | |
| Painting and glazing | 187 80 | | |
| Plumbing . . . . | 20 01 | | |
| Roofing . . . . | 7 68 | | |
| Tinting . . . . | 35 00 | | |
| Salary, Janitor Geo. D. Brown . . . | 1,202 46 | | |
| Steam-fittings and repairs . . . . . | 195 63 | | |
| Supplies . . . . . | 12 58 | | |
| Tables . . . . . | 6 75 | | |
| Weighing coal . . . | 2 43 | | |
| | | $2,624 44 | |

Brattle Square Building:—

| | | | |
|---|---|---|---|
| For Drain work . . . . | 21 35 | | |
| Fuel . . . . . | 716 99 | | |
| Gas . . . . . | 641 70 | | |
| Gas-fitting . . . . | 55 51 | | |
| Hardware, tools, etc. | 11 41 | | |
| Inside blinds . . . | 40 00 | | |
| Lighting tower clock | 33 55 | | |
| Am'ts carried forward | $1,520 51 | $6,771 27 | $10,553 74 |

| | | | |
|---|---|---|---|
| Am'ts brought forward | $1,520 51 | $6,771 27 | $10,553 74 |
| For Mats . . . . . | 17 19 | | |
| Repairs, carpenter work | 281 87 | | |
| Painting and glazing | 198 65 | | |
| Plumbing . . . . | 130 00 | | |
| Roof . . . . . | 131 20 | | |
| Tinting and whitening . . . . . | 32 75 | | |
| Salary, janitor, Chas. Munroe . . . . | 1,251 91 | | |
| Steam fittings . . . | 56 11 | | |
| Sundries . . . . . | 14 77 | | |
| Ventilators . . . . | 21 47 | | |
| Vestibule lamp . . | 5 00 | | |
| Wiring for electric lights . . . . . | 15 00 | | |
| | | 3,676 43 | |
| Other City Buildings:— | | | |
| For Gas . . . . . | 46 03 | | |
| Glazing . . . . . | 2 76 | | |
| | | 48 79 | |
| As per item No. 8 of expenses . . . | | | $10,496 49 |
| Balance unexpended . . . . . | | | $57 25 |

## City Lands.

RECEIVED.

| | |
|---|---|
| For cash payments on estates sold, as per item No. 7 of receipts . . . . . | $14,827 66 |

## Discount, Taxes.

| | |
|---|---|
| Amount appropriated . . . . . | $26,000 00 |
| Amount transferred to . . . . . | 100 00 |
| | $26,100 00 |

EXPENDED.

| | |
|---|---|
| For discount on taxes, as per item No. 9 of expenses | 26,054 53 |
| Balance unexpended . . . . . | 45 47 |

## Engineering.

| | |
|---|---|
| Amount appropriated | $6,000 00 |
| Estimated revenue | 1,500 00 |
| | $7,500 00 |

RECEIVED.

| | |
|---|---|
| For services of City Engineer on the Stony Brook Additional Water Supply, as per item No 8 of receipts | $1,500 00 |

EXPENDED.

| | | |
|---|---|---|
| For Assistants, services of | $3,984 65 | |
| Auto-copyist | 15 50 | |
| Binding plans | 16 00 | |
| Carriage hire | 5 00 | |
| Drawing instruments and materials | 132 92 | |
| Granite posts | 18 00 | |
| Salary, City Engineer Wm. S. Barbour | 3,000 00 | |
| Sundries | 19 10 | |
| As per item No. 10 of expenses | $7,191 17 | $7,191 17 |
| Balance unexpended | | $308 83 |

## Fire Department.

| | |
|---|---|
| Amount appropriated | $52,800 00 |
| Estimated revenue | 200 00 |
| Surplus revenue | 134 46 |
| | $53,134 46 |
| Less amount transferred from | 1,600 00 |
| Amount carried forward | $51,534 46 |

| | | |
|---|---|---|
| Amount brought forward . . . . . | | $51,534 46 |

RECEIVED.

| | | |
|---|---|---|
| For Horse . . . . . | $50 00 | |
| Manure . . . . . | 75 00 | |
| Old material . . . . . | 209 46 | |
| As per item No. 9 of receipts . . . | $334 46 | |

EXPENDED.

| | | |
|---|---|---|
| For Apparatus and repairs . . . . | $1,184 91 | |
| Bedding and furniture . . . . | 175 38 | |
| Brooms and brushes . . . . . | 31 00 | |
| Carriage hire for committees . . | 12 00 | |
| Cleaning materials for apparatus . | 15 00 | |
| Expenses of Chief Engineer to Atlanta . . . . . | 75 00 | |
| Expressage . . . . . | 19 40 | |
| Fire hats . . . . . | 99 54 | |
| Fuel . . . . . | 844 36 | |
| Gas . . . . . | 825 50 | |
| Hardware and tools . . . . . | 83 61 | |
| Harnesses and repairs . . . . | 122 08 | |
| Hay and grain . . . . . | 2,379 47 | |
| Houses, repairs of . . . . . | 1,153 50 | |
| Horses . . . . . | 1,300 00 | |
| Horse hire and men . . . . . | 1,001 00 | |
| Horse-shoeing . . . . . | 534 10 | |
| Hose and repairs . . . . . | 352 44 | |
| Hydrants, care of . . . . . | 219 05 | |
| Ice . . . . . | 40 54 | |
| Labor as per pay rolls . . . . | 35,628 66 | |
| Printing and stationery . . . . | 18 25 | |
| Rent of shed . . . . . | 90 00 | |
| Rent of land . . . . . | 80 00 | |
| Salaries, chief engineer . . . . | 1,500 00 | |
| Assistant engineers . . . . | 1,112 49 | |
| Clerk . . . . . | 25 00 | |
| Amounts carried forward . . . | $48,922 28 | $51,534 46 |

| | | |
|---|---|---|
| Amounts brought forward . . . | $48,922 28 | $51,534 46 |
| For Supplies for chemical engine . . | 36 27 | |
| Supplies for F. A. Telegraph . . | 798 52 | |
| Supplies, (soap, candles, oil and matches) . . . . . | 62 12 | |
| Substitutes, vacation and sickness | 733 75 | |
| Veterinary surgeon and medicine | 200 74 | |
| Washing . . . . . | 330 89 | |
| As per item No. 11 of expenses | | $51,084 57 |
| Balance unexpended, | | $449 89 |

**Fire Department, New Building.**

| | |
|---|---|
| Amount appropriated . . . . . | $12,000 00 |
| Amount transferred to . . . . . | 5,600 00 |
| | $17,600 00 |

EXPENDED.

| | | |
|---|---|---|
| For Architect . - . . . . . | 425 00 | |
| Contract for building, H. Coon & Co., on account . . . . . | 9,000 00 | |
| Expense of sewer . . . . . | 467 92 | |
| Signs . . . . . | 32 50 | |
| Sliding-poles, posts and railings . | 110 00 | |
| Water supply . . . . . | 10 10 | |
| As per item No. 12 of expenses | | $10,045 52 |
| Balance unexpended, | | $7,554 48 |

**Health Department.**

| | |
|---|---|
| Amount appropriated . . . . . | $3,500 00 |

EXPENDED.

| | | |
|---|---|---|
| For Analyses . . . . . | 10 00 | |
| Burying animals . . . . . | 18 60 | |
| Amounts carried forward . . . | $28 60 | $3,500 00 |

| | | | |
|---|---|---|---|
| | Amounts brought forward . . . | $28 60 | $3,500 00 |
| For | Carriage hire . . . . . | 14 00 | |
| | Car tickets . . . . . | 65 00 | |
| | Cow-pox points. . . . . | 14 20 | |
| | Directory . . . . . | 2 50 | |
| | Disinfectants . . . . . | 40 69 | |
| | Expenses of health officer to Memphis . . . . . | 65 50 | |
| | Expense in small-pox case . . . | 48 75 | |
| | Expressage . . . . . | 95 | |
| | Investigation of East Somerville nuisance . . . . . | 186 26 | |
| | Printing . . . . . | 17 50 | |
| | Refreshments . . . . . | 6 50 | |
| | Salaries, Health officer, Dr. A. F. Holt . . . . . | 1,500 00 | |
| | Sanitary inspector, C. S. Lincoln . . . . . | 900 00 | |
| | Clerk of board, John McDuffie . | 150 00 | |
| | Sewage map . . . . . | 44 45 | |
| | Stationery and postage . . . . | 32 70 | |
| | Sundries . . . . . | 1 47 | |
| As per item No. 13. of expenses | | | $3,119 07 |
| | Balance unexpended, | | $380 93 |

**Incidental Expenses.**

| | |
|---|---|
| Amount appropriated . . . . . | $30,500 00 |
| Estimated revenue . . . . . | 3,500 00 |
| Surplus revenue . . . . . | 302 25 |
| | $34,302 25 |
| Add amounts transferred to . . . . . | 1,500 00 |
| | $35,802 25 |
| Deduct amounts transferred from | 2,600 00 |
| Amount carried forward . . . . . | $33,202 25 |

| | | |
|---|---|---|
| Amount brought forward . . . . . | | $33,202 25 |

RECEIVED.

| | | |
|---|---|---|
| For Costs in suit, McL. F. Pickering . . . . . | $59 15 | |
| Costs in suit, H. H. Pike and son, trustees . . . . . | 8 33 | |
| Copy of test types . . . . | 2 00 | |
| Error in bill . . . . . | 14 95 | |
| Fees, Collector's . . . . . | 1,015 78 | |
| Fees, City Clerk's . . . . | 1,883 80 | |
| Fees, Sealer's . . . . . | 358 76 | |
| Fees, Weigher's (one-half) . | 111 38 | |
| Licenses, grease and junk . | 37 00 | |
| Licenses, liquor . . . . . | 37 00 | |
| Licenses, milk . . . . . | 98 00 | |
| Licenses, peddlers' . . . . | 50 00 | |
| Old iron . . . . . | 45 00 | |
| Old stone steps . . . . . | 33 00 | |
| Rent of land on Walden Street . . . . . | 5 00 | |
| Sale of buggy . . . . . | 15 00 | |
| Witness fees . . . . . | 28 10 | |
| As per item No. 10 of receipts . | $3,802 25 | |

EXPENDED.

| | | |
|---|---|---|
| For Advertising . . . . . | 301 69 | |
| Analysis of beer . . . . . | 25 00 | |
| Ash barrel . . . . . | 5 00 | |
| Assistant Assessors . . . | 1,232 00 | |
| Assessors, abstracting deeds, etc. . . . . | 244 00 | |
| Assessors, Banker and Tradesman . . . . . | 5 00 | |
| Assessors, carriage hire . . | 24 00 | |
| Assessors, clerical assistance . | 1,570 52 | |
| Auditor, clerical assistance . | 458 05 | |
| Amounts carried forward . . | $3,865 26 | $33,202 25 |

| | | | | |
|---|---|---|---|---|
| | Amounts brought forward . | | $3,865 26 | $33,202 25 |
| For | Auto-copyist . . . . . | | 15 75 | |
| | Binding Documents . . . | | 3 90 | |
| | Births and deaths, returns of | | 59 75 | |
| | Bonds . . . . . | | 3 00 | |
| | Boxes, pasteboard . . . . | | 6 25 | |
| | Boxes, tin . . . . . | | 9 60 | |
| | Brushes . . . . . | | 20 00 | |
| | Care of clocks . . . . . | | 173 50 | |
| | Care of fires . . . . . | | 40 00 | |
| | Care of horse and carriage, (Supt. of Buildings) . . . | | 374 90 | |
| | Carriage hire, committees . | | 119 00 | |
| | Carriage hire, paymaster . | | 330 00 | |
| | Car tickets, City Council . | | 600 00 | |
| | Census, reports . . . . . | | 264 00 | |
| | City Clerk, clerical assistance | | 440 85 | |
| | City Hall, yard grading . . | | 14 26 | |
| | City Scales, repairs of . . | | 6 87 | |
| | Clerk of Committees, clerical assistance . . . . . | | 559 50 | |
| | Clerk of Commissioners of Sinking Fund, John McDuffie . . . . . | | 25 00 | |
| | Commissions, collecting Poll Taxes . . . . . | | 1,070 00 | |
| | Commissions, sales of land . | | 455 37 | |
| | Counterfeit detector, Treasurer | | 3 00 | |
| | Damages awarded to:— | | | |
| | A. W. Balcom . . | $24 25 | | |
| | James T. Brady . | 130 00 | | |
| | Geo. W. Butler . | 135 00 | | |
| | Linus M. Child . . | 200 00 | | |
| | E. F. Clarke . . | 33 75 | | |
| | C. T. Conant . . | 40 00 | | |
| | Mary A. Hayes . . | 25 00 | | |
| | Catherine A. Hutchinson . . . . | 525 25 | | |
| Amounts carried forward . | | $1,122 25 | $8,459 76 | $33,202 25 |

| | | | |
|---|---|---|---|
| Amounts brought forward . | $1,122 25 | $8,459 76 | $33,202 25 |
| For Damages awarded to — | | | |
| Elias N. Lane . . | 9 00 | | |
| Mary McDermott . | 300 25 | | |
| John F. McQuaide | 30 00 | | |
| Catherine Murphy, exec. . . . . | 328 35 | | |
| Geo. A. Perkins and Freeman Hunt . | 16 00 | | |
| Grace E. Raymond | 150 00 | | |
| | | $1,946 85 | |
| Decoration Day, G. A. R. | | 1,000 00 | |
| Deeds, abstracting and recording . . . . . | | 24 79 | |
| Directories . . . . . | | 44 50 | |
| Distributing tax notices . | | 195 25 | |
| Distributing water notices | | 78 00 | |
| Election expenses :— | | | |
| Binding and mounting voting lists . | 74 40 | | |
| Carpenter work . | 76 94 | | |
| Carting ballot-boxes | 79 95 | | |
| Clerical assistance to Registrars of Voters . . . . | 74 00 | | |
| Cross pens for Reg. of Voters . . . | 5 34 | | |
| Extra labor of janitors in ward rooms . . . . | 153 50 | | |
| Keys . . . . . | 2 35 | | |
| Moving furniture . | 20 80 | | |
| Posting notices and warrants . . . | 57 75 | | |
| Precinct books . . | 185 00 | | |
| Precinct officers . | 715 00 | | |
| Refreshments, recount of votes . | 35 00 | | |
| Amounts carried forward . | $1,480 03 | $11,749 15 | $33,202 25 |

| | | | |
|---|---|---|---|
| Amount brought forward . | $1,480 03 | $11,749 15 | $33,202 25 |
| For Election expenses: — | | | |
| Registrars' blanks and circulars . . | 11 25 | | |
| Rent of ward rooms | 171 00 | | |
| Repairs of ballot-boxes . . . . | 23 55 | | |
| Ringing bells . . | 16 50 | | |
| Salaries of registrars: — | | | |
| Isaac Bradford . | 400 00 | | |
| James Cox . . | 400 00 | | |
| Horace K. Osborn | 400 00 | | |
| Tabulating returns | 25 00 | | |
| Voting lists . . . | 463 58 | | |
| Walnut case . . | 56 00 | | |
| | | $3,446 91 | |
| Error in tax account . | | 15 66 | |
| Executions against the City, viz: — | | | |
| A. Z. Brown . . | 278 35 | | |
| Jeremiah Connor . | 190 25 | | |
| F. J. Geoghegan . | 262 75 | | |
| Mary T. McIntire . | 468 81 | | |
| Town of Paxton . | 65 92 | | |
| | | $1,266 08 | |
| Expenses of Cambridge Railroad, strike, extra police, etc. . . | | 4,030 89 | |
| Entertaining Philadelphia City Government . . . . . | | 288 00 | |
| Entertaining Press Association . . . | | 208 00 | |
| Dr. Grant's case . . | | 135 00 | |
| Sealer of Weights and Measures . . . . | | 172 79 | |
| Amounts carried forward . . . . | | $21,312 48 | $33,202 25 |

| | | | | |
|---|---|---|---|---|
| Amounts carried forward . . . | | | $21,312 48 | $33,202 25 |
| For Expressage . . . . | | | 55 20 | |
| Fences, City Hall yard | 89 30 | | | |
| Mill Pond . | 140 80 | | | |
| Porter Street | 12 50 | | | |
| Harvard Sq. Common . | 1 80 | | | |
| | | | 244 40 | |
| Firing salutes . . . . . | | | 200 00 | |
| Flag staff . . . . . | | | 295 00 | |
| Heating apparatus . . . . | | | 80 33 | |
| High school exhibition . . | | | 50 00 | |
| Land, Holyoke Street . . . | | | 403 77 | |
| Legal expenses, witness fees, etc. . . . . | | | 263 23 | |
| Liquor licenses, (one fourth to State) . . . . . | | | 9 25 | |
| Mass. Reports . . . . . | | | 9 75 | |
| Messenger's Assistant . . . | | | 262 50 | |
| Moving Furniture . . . . | | | 3 00 | |
| New Almshouse Building:— | | | | |
| Architect . . . . . | | | 120 00 | |
| Newspapers . . . . . | | | 29 50 | |
| Page, to Common Council . | | | 50 00 | |
| Photographs . . . . . | | | 12 00 | |
| Postal cards for City Treasurer . . . . . | | | 110 00 | |
| Printing . . . . . | | | 664 12 | |
| Public Statutes . . . . . | | | 2 85 | |
| Railroad Guide . . . . . | | | 1 50 | |
| Rebate of license fees . . . | | | 4 00 | |
| Refreshments, Committees . | | | 34 40 | |
| Rent of box, safety deposit vaults . . . . . | | | 30 00 | |
| Halls for public meetings . | | | 100 00 | |
| Post office box . . . . | | | 4 00 | |
| Repairs of City property . | | | 217 33 | |
| Ringing bells, holidays . | | | 85 00 | |
| Amounts carried forward . . | | | $24,653 61 | $33,202 25 |

| | | |
|---|---|---|
| Amounts brought forward . | $24,653 61 | $33,202 25 |
| For Salary, Deputy Milk and Vinegar Inspector, C. S. Lincoln | 62 22 | |
| Samples, milk and vinegar . | 34 15 | |
| Sealing, weights and measures | 8 89 | |
| Serving warrants, &c., posting notices . . . . . | 98 50 | |
| Shovelling snow . . . . . | 82 20 | |
| Sleigh and wolf robe (Superintendent of Buildings) . | 53 50 | |
| Sluiceway, mill pond . . . | 270 03 | |
| Somerville tax . . . . . | 433 64 | |
| Stationery . . . . . | 7 72 | |
| Stenographer . . . . . | 5 00 | |
| Stove-work . . . . . | 28 95 | |
| Tax-bills and schedules . . | 79 50 | |
| Telegrams . . . . . | 5 20 | |
| Treasurer, clerks . . . . | 3,305 77 | |
| Treasurer, extra clerks . . | 462 45 | |
| Typewriting . . . . . | 12 30 | |
| Weighing coal . . . . . | 35 12 | |
| As per item No. 14 of expenses . | | $29,638 75 |
| Balance unexpended . . | | $3,563 50 |

**Interest.**

| | |
|---|---|
| Amount appropriated . . . . . | $111,000 00 |
| Estimated revenue . . . . . | 1,500 00 |
| Surplus revenue . . . . . | 1,483 58 |
| | $113,983 58 |

RECEIVED.

| | | |
|---|---|---|
| For Bonus on loan . . . . . | $4 00 | |
| Deposits in bank . . . . | 926 82 | |
| Int. on Bridge loan (accrued) | 16 67 | |
| Sewer loan (accrued) | 33 33 | |
| Prepayments to Sinking Fund Com.. . | 61 31 | |
| Amount carried forward . . | $1,042 13 | $113,983 58 |

| | | |
|---|---|---|
| Amount brought forward . . | $1,042 13 | $113,983 58 |
| For Int. on Mortgage notes . . | 367 63 | |
| Taxes . . . . . | 1,573 82 | |
| As per item No. 11 of receipts . | $2,983 58 | |

EXPENDED.

| | | |
|---|---|---|
| For int. on Cemetery fund . . . | $513 00 | |
| Daniel White charity | 300 00 | |
| Dowse Institute fund | 600 00 | |
| Fay fund . . . . | 120 00 | |
| Funded loan (coupon) | 75,910 00 | |
| Funded loan, regist'rd | 17,475 00 | |
| Note to Cambridge Savings Bank . . | 227 50 | |
| Note to Trustees of Water Loan Sink'g Fund . . . . . | 8,000 00 | |
| Sanders T'mp'nce Fund | 600 00 | |
| Temporary loan . . | 9,222 24 | |
| As per item No. 15 of expenses . | | $112,967 74 |
| Balance unexpended . . | | $1,015 84 |

**Lighting Streets.**

| | |
|---|---|
| Amount appropriated . . . . . | $42,250 00 |
| Estimated revenue . . . . . | 50 00 |
| Surplus revenue . . . . . | 23 58 |
| | $42,323 58 |
| Less amount transferred from . . . . . | 1,500 00 |
| | $40,823 58 |

RECEIVED.

| | | |
|---|---|---|
| For damage to lamp-posts, etc. . | $68 08 | |
| Moving lamp-post . . . . | 2 50 | |
| Sale of brass and copper . . | 3 00 | |
| As per item No. 12 of receipts . | $73 58 | |
| Amount carried forward . | | $40,823 58 |

| | | |
|---|---|---|
| Amount brought forward . | | $40,823 58 |

EXPENDED.

| | | |
|---|---|---|
| For Alcohol . . . . . | $81 98 | |
| Analysis of kerosene . . . | 3 00 | |
| Bricks . . . . . | 8 40 | |
| Burners and wicks . . . . | 22 84 | |
| Carpenter work . . . . . | 33 30 | |
| Carriage-hire for Committee . | 46 00 | |
| Carriage-hire for Supt. . . | 88 00 | |
| Electric lights . . . . . | 12,526 55 | |
| Gas . . . . . | 15,150 66 | |
| Gas-pipe and fittings . . . | 116 40 | |
| Glass, putty, etc. . . . . | 52 92 | |
| Granite circles . . . . . | 79 10 | |
| Gravel . . . . . | 1 00 | |
| Hardware, tools and repairs . | 9 20 | |
| Labor, as per pay-roll for care of lamps . . . . | 8,052 36 | |
| Extra . . . . . | 11 00 | |
| Testing machine . . | 2 50 | |
| Matches . . . . . | 15 96 | |
| Oil . . . . . | 345 35 | |
| Painting lanterns . . . . | 12 00 | |
| Paving . . . . . | 56 50 | |
| Posts and lanterns . . . . | 93 00 | |
| Printing . . . . . | 21 75 | |
| Refreshments for Committee | 5 50 | |
| Repairing, Ladders . . . . | 80 | |
| Lamps . . . . | 131 70 | |
| Lamp-posts . . . | 35 73 | |
| Lanterns . . . | 147 41 | |
| Salary of Superintendent B. F. Nourse . . | 54 16 | |
| B. Otis Danforth . | 561 27 | |
| Services of Isaac S. Pear . . | 50 00 | |
| Signs . . . . . | 2 00 | |
| Amounts carried forward . | $37,818 34 | $40,823 58 |

| | | |
|---|---|---|
| Amounts brought forward . | $37,818 34 | $40,823 58 |
| For Sundry repairs . . . . . | 14 45 | |
| Teaming . . . . . | 75 | |
| As per item No. 16 of expenses . | ———— | $37,833 54 |
| Balance unexpended . . | | $2,990 04 |

**Loan (Bridge).**

RECEIVED.

| | |
|---|---|
| From sale of Registered Bond No. 1, dated Oct. 1, 1887, payable in thirty years with interest at four per cent per annum, as per item No. 13 of receipts . . . . . | $10,000 00 |

**Loan (High School).**

| | |
|---|---|
| Amount appropriated . . . . . | $6.500 00 |

EXPENDED.

| | |
|---|---|
| For Note to Cambridge Savings Bank. Due and paid Oct. 1, 1887, as per item No. 17 of expenses . . . . . | $6,500 00 |

**Loan (Low Land).**

RECEIVED.

| | |
|---|---|
| From the Commissioners of the Sinking Funds, as per item No. 30 of receipts . . . . . | $120,000 00 |

EXPENDED.

| | |
|---|---|
| For Matured Bond, as per item No. 18 of expenses . . . . . | $120,000 00 |

**Loan (Sewer).**

RECEIVED.

| | |
|---|---|
| From sale of Registered Bond No. 2, dated Nov. 1, 1887, payable in twenty years with interest at four per cent per annum, as per item No. 14 of receipts . . . . . | $30,000 00 |

**Loan (Temporary).**

RECEIVED.

| | |
|---|---|
| For City Notes issued during the year, as per item No. 15 of receipts . . . . . | $555,000 00 |

EXPENDED.

| | |
|---|---|
| For City Notes due and paid Oct. 10, 11, 12, and 15, as per item No. 19 of expenses . . . . . | $555,000 00 |

**Loan (Water).**

RECEIVED.

| | |
|---|---|
| From sale of Bonds, as per item No. 16 of receipts . . . . . | $110,000 00 |

EXPENDED.

| | |
|---|---|
| For Matured Bonds, as per item No. 20 of expenses . . . . . | $150,000 00 |

**Pauper Department.**

| | | |
|---|---|---|
| Amount appropriated . . . . . | | $21,000 00 |
| Estimated revenue . . . . . | | $4,000 00 |
| | | 25,000 00 |
| Deduct amount transferred from . . . . . | | 500 00 |
| | | $24,500 00 |

RECEIVED.

| | | |
|---|---|---|
| For aid to and burial of paupers, as per item No. 18 of receipts . | $3,894 32 | |

EXPENDED.

| | | |
|---|---|---|
| For Advertising and printing . . | $65 75 | |
| Air cushion . . . . . | 2 20 | |
| Beans . . . . . | 111 71 | |
| Amounts brought forward . | $179 66 | $24,500 00 |

| | | | |
|---|---|---|---|
| | Amounts brought forward . | $179 66 | $24,500 00 |
| For | Boots and shoes . . . . . | 256 36 | |
| | Carriage-hire . . . . . | 8 00 | |
| | Car tickets . . . . . | 150 00 | |
| | Directories . . . . . | 17 65 | |
| | Dry goods . . . . . | 30 52 | |
| | Expressage . . . . . | 15 | |
| | Flour . . . . . | 505 00 | |
| | Flour bags . . . . . | 8 67 | |
| | Fuel . . . . . | 951 17 | |
| | Gas . . . . . | 57 38 | |
| | Groceries . . . . . | 534 18 | |
| | Ice . . . . . | 6 00 | |
| | Manilla bags . . . . . | 21 41 | |
| | Medical attendance . . . | 5 00 | |
| | Medicines . . . . . | 179 67 | |
| | Newspapers . . . . . | 75 | |
| | Nurse . . . . . | 42 42 | |
| | Paupers, Aid . . . . . | 2,024 56 | |
| | Board and care . . | 15,414 94 | |
| | Burials . . . . . | 263 00 | |
| | Rent . . . . . | 192 00 | |
| | Transportation . . | 6 22 | |
| | Postage . . . . . | 36 95 | |
| | Provisions . . . . . | 54 00 | |
| | Railroad Guide . . . . . | 65 | |
| | Repairs on pung . . . . . | 42 00 | |
| | Repairs, secretary's office . . | 17 72 | |
| | Rubber stamp . . . . . | 2 00 | |
| | Salary, Sec'y D. P. Muzzey | 1,358 32 | |
| | Salary, Visitor V. Danforth . | 1,500 00 | |
| | Scales . . . . . | 16 00 | |
| | Stationery . . . . . | 100 73 | |
| | Sundries . . . . . | 4 08 | |
| | Telegrams . . . . . | 50 | |
| | Telephone rent and tolls . . | 107 50 | |
| | Travelling expenses, Visitor and others . . . . . | 121 01 | |
| | Amounts carried forward, . | $24,216 17 | $24,500 00 |

| | | |
|---|---|---|
| Amounts brought forward . | $24,216 17 | $24,500 00 |
| For Trusses . . . . . | 6 00 | |
| Washing . . . . . | 3 00 | |
| As per item No. 21 of expenses . | | $24,225 17 |
| Balance unexpended . | | $274,83 |

### Notes Receivable.

RECEIVED.

| | |
|---|---|
| On account of mortgage notes held by the City, as per item No. 17 of receipts . . . . . | $7,651 39 |

### Pauper Department, Almshouse.

| | |
|---|---|
| Amount appropriated . . . . . | $16,000 00 |
| Estimated revenue . . . . . | 6,000 00 |
| Surplus revenue . . . . . | 1,669 44 |
| | $23,669 44 |

RECEIVED.

| | | |
|---|---|---|
| For Aid, board and care of paupers | $514 64 | |
| Barrels . . . . . | 15 88 | |
| Error in bill . . . . . | 9 93 | |
| Farm produce . . . . . | 1,595 10 | |
| Grease and bones . . . . | 70 49 | |
| Junk and rags . . . . . | 131 39 | |
| Proceeds of chair shop . . . | 634 19 | |
| Stone . . . . . | 4,684 14 | |
| Weighing fees . . . . . | 13 68 | |
| As per item No. 19 of receipts . | $7,669 44 | |

EXPENDED.

| | | |
|---|---|---|
| For Advertising . . . . . | $9 00 | |
| Barges, use of . . . . . | 12 00 | |
| Beans . . . . . | 51 20 | |
| Beef and mutton . . . . | 1,686 05 | |
| Books . . . . . | 47 75 | |
| Amounts carried forward . | $1,806 00 | $23,669 44 |

| | | | | |
|---|---|---|---|---|
| | Amounts brought forward . | | $1,806 00 | $23,669 44 |
| For | Boots and shoes . . . . . | | 315 70 | |
| | Brooms and dusters . . . | | 15 92 | |
| | Burials . . . . . | | 51 00 | |
| | Butter . . . . . | | 825 53 | |
| | Car-fares . . . . . | | 25 27 | |
| | Carriage-hire . . . . . | | 5 00 | |
| | Carriage repairs . . . . | | 50 70 | |
| | Cash to inmates . . . . | | 70 29 | |
| | Chaplain . . . . . | | 100 00 | |
| | Clothing . . . . . | | 440 81 | |
| | Cows . . . . . | | 170 50 | |
| | Crockery-ware . . . . . | | 170 19 | |
| | Directory . . . . . | | 2 50 | |
| | Disinfectants . . . . . | | 10 00 | |
| | Dog-license . . . . . | | 2 00 | |
| | Dry goods, etc. . . . . | | 1,087 32 | |
| | Expressage . . . . . | | 9 20 | |
| | Extracting tooth . . . . | | 1 00 | |
| | Fireworks, refreshments, etc. | | 87 03 | |
| | Fish . . . . . | | 437 77 | |
| | Flour . . . . . | | 981 90 | |
| | Fruit . . . . . | | 42 05 | |
| | Fuel . . . . . | | 1,416 67 | |
| | Furniture and carpets . . . | | 91 12 | |
| | Gas . . . . . | | 249 32 | |
| | Groceries . . . . . | | 1,366 34 | |
| | Hardware, tools and repairs . | | 563 16 | |
| | Harness and repairs . . . | | 78 25 | |
| | Hats and caps . . . . . | | 34 80 | |
| | Hay and grain . . . . . | | 296 78 | |
| | Ice . . . . . | | 39 62 | |
| | Insect powder . . . . . | | 17 75 | |
| | Intelligence Office fee . . | | 2 50 | |
| | Kitchen furniture . . . . | | 18 92 | |
| | Labor, as per pay-rolls: — | | | |
| | Farm . . . . 585 00 | | | |
| | House-officials 3,497 12 | | | |
| | Am'ts carried forward | $4,082 12 | $10,882 91 | $23,669 44 |

| | | | |
|---|---|---|---|
| Am'ts brought forward | $4,082 12 | $10,882 91 | $23,669 44 |
| For Labor as per pay rolls:— | | | |
| Ledge . . . . | 2,298 17 | | |
| Extra . . . . | 28 40 | | |
| | | 6,408 69 | |
| Lumber, lime and cement . | | 232 32 | |
| Market boxes . . . . . | | 2 20 | |
| Manure . . . . . | | 160 87 | |
| Medical attendance . . . | | 25 00 | |
| Medicines and drugs . . . | | 205 01 | |
| Milk . . . . . | | 103 75 | |
| Newspapers . . . . . | | 18 00 | |
| Nurse . . . . . | | 28 00 | |
| Oat meal , . . . . . | | 32 47 | |
| Oil . . . . . | | 14 60 | |
| Organist . . . . . | | 150 00 | |
| Painting . . . . . | | 54 02 | |
| Paper-hanging . . . . . | | 18 70 | |
| Pigs . . . . . | | 76 00 | |
| Plants and seeds . . . . | | 93 54 | |
| Powder . . . . . | | 193 00 | |
| Provisions . . . . . | | 863 08 | |
| Pump . . . . . | | 167 73 | |
| Range, &c. . . . . | | 223 32 | |
| Rattan and cane . . . . | | 345 15 | |
| Repairs, artificial leg . . . | | 5 00 | |
| Boiler . . . . . | | 6 00 | |
| Mason work . . . | | 62 07 | |
| Plumbing . . . . | | 56 43 | |
| Rubber goods . . . . . | | 20 38 | |
| Rubber stamp . . . . . | | 2 00 | |
| Salary, Warden M. L. Eldridge | | 1,200 00 | |
| " School Teacher H. A. Butler . . . . | | 474 30 | |
| " School Teacher Alice H. Fawcett . . . | | 96 02 | |
| Salt . . . . . | | 17 60 | |
| Sealing weights and measures | | 2 01 | |
| Amounts carried forward . . | | $22,240 17 | $23,669 44 |

| | | | |
|---|---|---|---|
| | Amounts brought forward . | $22,240 17 | $23,669 44 |
| For | Shoe-findings . . . . . | 87 53 | |
| | Soap . . . . . | 242 44 | |
| | Spectacles and repairs . . | 4 20 | |
| | Stationery and postage . . | 68 98 | |
| | Steam-fittings . . . . . | 73 89 | |
| | Stone . . . . . | 68 25 | |
| | Sundries . . . . . | 16 49 | |
| | Tank . . . . . | 39 00 | |
| | Telegram . . . . . | 25 | |
| | Telephone, rent and tolls . | 52 30 | |
| | Trusses . . . . . | 8 80 | |
| | Twine and hardware paper . | 10 96 | |
| | Vegetables . . . . . | 452 35 | |
| | Veterinary surgeon . . . | 3 00 | |
| | Window shades and sashes . | 38 44 | |
| | Yeast . . . . . | 36 06 | |
| | As per item No. 22 of expenses . | | $23,443 11 |
| | Balance unexpended . . | | $226 33 |

**Pauper Department (House Offal).**

| | | |
|---|---|---|
| Amount appropriated . . . . | | $10,500 00 |
| Estimated revenue . . . . . | | 6,000 00 |
| Surplus revenue . . . . . | | 856 59 |
| | | $17,356 59 |
| Deduct amount transferred from . | | 1,000 00 |
| | | $16,356 59 |

RECEIVED.

| | |
|---|---|
| For House Offal, as per item No. 20 of receipts . . . . . | $6,856 59 |

EXPENDED.

| | | |
|---|---|---|
| For | Harness and repairs . . . | 49 95 |
| | Horse-shoeing . . . . . | 320 11 |
| | Hay and grain . . . . . | 1,643 42 |
| | Amounts carried forward . | $2,013 48 |

| | | |
|---|---|---|
| Amounts brought forward . | $2,013 48 | $16,356 59 |
| For Hardware, tools and repairs . | 436 05 | |
| Labor, as per pay-rolls . . | 12,759 89 | |
| Lumber . . . . . | 105 48 | |
| Supplies . . . . . | 25 00 | |
| Wagon repairs . . . . . | 70 39 | |
| Veterinary surgeon and medicines . . . . . | 12 00 | |
| As per item No. 23 of expenses . | | $15,422 29 |
| Balance unexpended . . | | $934 30 |

**Police Department.**

| | |
|---|---|
| Amount appropriated . . . . . | $81,000 00 |
| Estimated revenue . . . . . | 6,000 00 |
| | $87,000 00 |
| Less amount transferred from . . | $4,000 00 |
| | $83,000 00 |

RECEIVED.

| | | |
|---|---|---|
| For Court fees and fines . . . | $5,598 59 | |
| Transportation of prisoners . | 15 95 | |
| Use of ropes and stakes . . | 6 00 | |
| As per item No. 21 of receipts . | $5,620 54 | |

EXPENDED.

| | | |
|---|---|---|
| For Atlas . . . . . | $6 50 | |
| Badges . . . . . | 22 90 | |
| Billies, strapping . . . . | 14 65 | |
| Buttons . . . . . | 65 30 | |
| Clubs . . . . . | 15 40 | |
| Cleaning stations . . . . | 138 03 | |
| Clock repairs . . . . . | 1 00 | |
| Copies of liquor law . . . | 40 00 | |
| Court expenses . . . . . | 4 00 | |
| Directories . . . . . | 20 00 | |
| Food for prisoners . . . . | 112 98 | |
| Amounts carried forward . . | $440 76 | $83,000 00 |

| | | | |
|---|---|---|---|
| Amounts brought forward . | | $440 76 | $83,000 00 |
| For Furniture and bedding . . | | 68 63 | |
| Gas . . . . . | | 492 03 | |
| Gas fittings . . . . . | | 17 90 | |
| Hardware, tools, &c. . . . | | 38 90 | |
| Horses, care of . . . . . | | 641 57 | |
| Ice . . . . . | | 32 40 | |
| Lanterns . . . . . | | 9 60 | |
| Lumber . . . . . | | 4 24 | |
| Medical attendance and medicines . . . . . | | 21 25 | |
| Printing . . . . . | | 42 25 | |
| Photographs . . . . . | | 43 00 | |
| Robe . . . . . | | 20 00 | |
| Salaries, Chief . . | $1,616 68 | | |
| Captains . . | 3,498 90 | | |
| Patrolmen . . | 72,184 24 | | |
| Matrons . . . | 260 56 | | |
| | | $77,560 38 | |
| Stationery . . . . . | | 13 50 | |
| Sundry repairs . . . . . | | 71 31 | |
| Supplies . . . . . | | 54 47 | |
| Telegrams . . . . . | | 1 35 | |
| Telephone, rent and tolls . | | 112 59 | |
| Travelling expenses . . . | | 381 35 | |
| Washing . . . . . | | 21 00 | |
| Wagon repairs . . . . . | | 120 15 | |
| Wreaths and straps . . . | | 15 25 | |
| As per item No. 24 of expenses . | | | $80,223 88 |
| Balance, unexpended . . | | | $2,776 12 |

**Salaries.**

| | | |
|---|---|---|
| Amount appropriated . . . . | | $26,600 00 |
| EXPENDED. | | |
| Wm. E. Russell, mayor . . . | $2,500 00 | |
| Wm. W. Dallinger, city treasurer | 3,000 00 | |
| Amounts carried forward . . | $5,500 00 | $26,600 00 |

| | | |
|---|---|---|
| Amounts brought forward . | $5,500 00 | $26,600 00 |
| Wm. W. Dallinger, treasurer of sinking funds. . . . . | 300 00 | |
| Justin A. Jacobs, city clerk . . | 250 00 | |
| Walter W. Pike, city clerk . . | 2,479 09 | |
| Walter W. Pike, assistant city clerk, . . . . . | 139 45 | |
| Walter W. Pike, clerk of common council . . . . . | 25 00 | |
| Edward J. Brandon, assistant city clerk . . . . . | 868 96 | |
| Edward N. Manning, clerk of common council . . . . . | 255 00 | |
| Harry T. Upham, auditor . . . | 1,800 00 | |
| Joshua G. Gooch, assessor . . . | 1,500 00 | |
| Joseph Whittemore, assessor . . | 1,500 00 | |
| Andrew J. Green, assessor . . . | 1,500 00 | |
| Chas. J. McIntire, city solicitor . | 2,000 00 | |
| John McDuffie, clerk of committees . . . . . | 2,000 00 | |
| John McDuffie, clerk of common council *pro tem.* . . . . . | 20 00 | |
| Francis L. Pratt, city messenger . | 1,500 00 | |
| B. F. Nourse, sealer of weights and measures . . . . . | 29 17 | |
| B. Otis Danforth, sealer of weights and measures . . . . . | 291 66 | |
| F. A. Dunbar, milk inspector . | 425 00 | |
| F. A. Dunbar, vinegar inspector . | 175 00 | |
| L. L. Bryant, assistant city physician . . . . . | 1,250 00 | |
| Benj. H. Steele, superintendent of buildings . . . . . | 1,750 00 | |
| Fred. W. Hagar, probation officer | 800 00 | |
| Wm. J. Marvin, harbor master . | 100 00 | |
| As per item No. 25 of expenses . | | $26,458 33 |
| Balance unexpended . . . | | $141 67 |

**School Department (Drawing Schools).**

| | | |
|---|---|---|
| Amount appropriated . . . . . | | $1,075 00 |
| EXPENDED. | | |
| For Teachers' salaries . . . . | $1,003 00 | |
| Janitor . . . . . | 50 75 | |
| Repairs and supplies . . . | 20 89 | |
| As per item No. 26 of expenses . | | $1,074 64 |
| Balance unexpended . . . | | $36 |

**School Department (Evening Schools).**

| | | |
|---|---|---|
| Amount appropriated . . . . | | $1,350 00 |
| EXPENDED. | | |
| For Teachers' salaries: | | |
| Ward 3 . . . . $522 50 | | |
| Ward 4 . . . . 378 00 | | |
| | $900 50 | |
| Care of rooms . . . . . | 148 00 | |
| Printing . . . . . | 4 50 | |
| Blackboard . . . . . | 15 84 | |
| As per item No. 27 of expenses . | | $1,068 84 |
| Balance unexpended . . . | | $281 16 |

**School Department (Incidental Expenses).**

| | | |
|---|---|---|
| Amount appropriated . . . . | | $1,100 00 |
| EXPENDED. | | |
| For Car-tickets . . . . . | $115 00 | |
| Collecting statistics . . . | 6 00 | |
| High school exhibition . . | 5 15 | |
| Industrial School:— | | |
| M. C. Beadle, instructor $294 00 | | |
| Tools and supplies . . 56 31 | | |
| | $350 31 | |
| Amounts carried forward . . | $476 46 | $1,100 00 |

| | | |
|---|---|---|
| Amounts brought forward . . . | $476 46 | $1,100 00 |
| For Printing and advertising . . . | 162 58 | |
| Salary, Secretary . . . . . | 300 00 | |
| Salary, Page . . . . . | 25 00 | |
| Travelling expenses of Superintendent . . . . . | 32 82 | |
| As per item No. 28 of expenses . | | $996 86 |
| Balance unexpended . . . | | $103 14 |

**School Department, Salaries.**

| | |
|---|---|
| Amount Appropriated . . . . | $171,000 00 |
| Estimated revenue . . . . . | 1,000 00 |
| Amount transferred to . . . . | 150 00 |
| | $172,150 00 |

RECEIVED.

| | | |
|---|---|---|
| From Hopkins Fund income . . | $686 63 | |
| Non-resident pupils . . . | 182 50 | |
| As per item No. 22 of receipts . | $869 13 | |

EXPENDED.

| | | |
|---|---|---|
| For Salaries : — | | |
| Agent . . . . . | $1,200 00 | |
| Drawing teacher . . . . | 850 00 | |
| Music teacher . . . . . | 1,700 00 | |
| Superintendent . . . . . | 2,900 00 | |
| Teachers . . . . . | 162,785 06 | |
| Truant officers . . . . . | 2,700 00 | |
| As per item No. 29 of expenses . | | $172,135 06 |
| Balance unexpended . . . | | $14 94 |

**School Department (Text-Books and Supplies).**

| | |
|---|---|
| Amount appropriated . . . . . | $11,800 00 |
| Revenue . . . . . | 338 99 |
| Amount carried forward . . . . | $12,138 99 |

| | | |
|---|---|---|
| Amount brought forward . . . . . | | $12,138 99 |
| Less amount transferred from . . . . . | | 250 00 |
| | | $11,888 99 |

RECEIVED.

| | |
|---|---|
| For sale of and damage to books . | $321 61 |
| School supplies for almshouse | 17 38 |
| As per item No. 23 of receipts | $338 99 |

EXPENDED.

| | | |
|---|---|---|
| For Apparatus and supplies . . | $366 31 | |
| Barometer . . . . . | 8 00 | |
| Book covers . . . . . | 405 85 | |
| Binding books . . . . . | 92 24 | |
| Carting and expressage . . | 171 28 | |
| Car tickets . . . . . | 10 00 | |
| Cyclostyles . . . . . | 54 90 | |
| Drawing instruments and materials . . . . . | 246 86 | |
| Ink . . . . . | 54 68 | |
| Ink-stands, trays and wells . | 86 33 | |
| Diplomas . . . . . | 106 42 | |
| Maps, charts and globes . . | 102 32 | |
| Pencils . . . . . | 476 68 | |
| Pens . . . . . | 94 08 | |
| Printing . . . . . | 178 82 | |
| Slates . . . . . | 132 91 | |
| Stationery . . . . . | 1,384 80 | |
| Sundries . . . . . | 95 95 | |
| Text books . . . . . | 6,903 07 | |
| Thermometers . . . . . | 10 00 | |
| Tuning pianos . . . . . | 10 50 | |
| As per item No. 30 of expenses | | $10,992 00 |
| Balance unexpended, | | $896 99 |

## School Houses (Care and Repairs).

| | |
|---|---|
| Amount appropriated | $37,500 00 |
| Revenue | 358 56 |
| Add amount transferred to | 1,169 36 |
| | $39,027 92 |

RECEIVED.

| | | |
|---|---|---|
| For Error in bill | $357 56 | |
| Old material | 1 00 | |
| As per item No. 24 of receipts | $358 56 | |

EXPENDED.

| | | |
|---|---|---|
| For Account books | 7 00 | |
| Blackboard surface | 246 66 | |
| Brushes and dusters | 230 01 | |
| Carpets, cleaning, etc. | 8 49 | |
| Clocks and repairs | 109 00 | |
| Conductors | 36 00 | |
| Contracts, J. K. James, plumbing Allston school house | 2,284 00 | |
| Clark & Crawford, plan and specifications | 111 55 | |
| Disinfectants | 28 51 | |
| Drain work and cesspool | 1,085 30 | |
| Electric bells and repairs | 22 90 | |
| Extra labor of janitors | 35 00 | |
| Fences and repairs | 153 90 | |
| Fuel | 7,793 38 | |
| Furnace work | 1,877 07 | |
| Furniture and repairs | 839 72 | |
| Gas | 785 25 | |
| Gas-fittings | 76 42 | |
| Grading | 223 12 | |
| Hardware, tools and repairs | 212 35 | |
| Amounts carried forward | $16,165 63 | $39,027 92 |

| | | | |
|---|---|---|---|
| | Amounts brought forward . | $16,165 63 | $39,027 92 |
| For | Hose . . . . . | 24 50 | |
| | Lumber . . . . . | 5 16 | |
| | Mats . . . . . | 247 89 | |
| | Moving furniture and expressage . . . . . | 33 75 | |
| | Repairs, Boiler work . . . | 16 87 | |
| | Carpenter work . . . . | 1,807 08 | |
| | Lightning rods . . . . | 5 25 | |
| | Mason work . . . . . | 207 85 | |
| | Painting and glazing . . | 2,246 01 | |
| | Plastering and whitewashing . . . . . | 630 25 | |
| | Plumbing . . . . . | 449 53 | |
| | Roofing . . . . . | 320 73 | |
| | Removing night-soil . . . | 152 00 | |
| | Rocking-grates . . . . . | 210 75 | |
| | Salaries, janitors . . . . | 12,741 14 | |
| | Shades and repairs . . . . | 167 04 | |
| | Steam-fittings . . . . . | 229 34 | |
| | Steam heating apparatus Washington school house . | 3,215 00 | |
| | Sundries . . . . . | 29 81 | |
| As per item No. 31 of expenses | | | $38,905 58 |
| | Balance unexpended . . | | $122 34 |

**School Department (New and Furniture).**

| | |
|---|---|
| Amount appropriated . . . . . | $24,000 00 |
| Revenue . . . . . | 310 00 |
| Add amount transferred to . . . . . | 2,500 00 |
| | $26,810 00 |
| Deduct amount transferred from . . . . . | 3,000 00 |
| Amount carried forward . . . . . | $23,810 00 |

| | | |
|---|---|---|
| Amount brought forward . | | $23,810 00 |
| RECEIVED. | | |
| For sale of house No. 73 Fourth street, as per item No. 25 of receipts . . . . . | $310 00 | |
| EXPENDED. | | |
| For Architect . . . . . | $465 00 | |
| Contract, D. Sullivan and Son builders . . . . . | 4,700 00 | |
| Examination of title . . . | 25 00 | |
| Expense of sale of house . . | 26 50 | |
| Grading . . . . . | 43 00 | |
| Land . . . . . | 4,000 00 | |
| Plank walk . . . . . | 11 99 | |
| Water supply . . . . . | 33 25 | |
| As per item No 32 of expenses . . . . . | | $9,304 74 |
| Balance unexpended . . . . . | | $14,505 26 |

**School Houses (Webster Completion).**

| | | |
|---|---|---|
| Amount appropriated . . . . . | | $1,500 00 |
| Less amount transferred from . . . . . | | 69 36 |
| | | $1,430 64 |
| EXPENDED. | | |
| For Fence . . . . . | $385 53 | |
| Furniture . . . . . | 413 40 | |
| Gas-fittings . . . . . | 3 41 | |
| Gas-fixtures . . . . . | 475 00 | |
| Paving yard . . . . . | 153 30 | |
| As per item No. 33 of expenses . . . . . | | $1,430 64 |

**Sewers (Construction).**

| | |
|---|---|
| Amount appropriated . . . . . | $11,000 00 |
| Estimated revenue . . . . . | 14,000 00 |
| Amount carried forward . . . . . | $25,000 00 |

| | |
|---|---|
| Amount brought forward . . . . . | $25,000 00 |
| Surplus revenue . . . . . | 6,474 70 |
| Amount transferred to . . . . . | 3,961 36 |
| | $35,436 06 |

RECEIVED.

| | | |
|---|---|---|
| From Assessments . . . . . | $19,415 34 | |
| For Building branch sewer from McDonald Street . . . . | 185 48 | |
| Error in pay-roll . . . . | 5 00 | |
| Fee for entering Hampshire Street sewer . . . . . | 11 44 | |
| Laying special pipe at Little Pond outlet Fresh Pond . | 11 50 | |
| Premium on bonds . . . . | 100 00 | |
| Sewer work at Lee Street School house . . . . . | 745 94 | |
| As per item No. 26 of receipts . | $20,474 70 | |

EXPENDED.

| | | |
|---|---|---|
| For Advertising . . . . . | $9 00 | |
| Bricks . . . . . | 2,562 21 | |
| Carpenter work . . . . . | 23 51 | |
| Carriage-hire . . . . . | 16 00 | |
| Castings . . . . . | 590 97 | |
| Cement . . . . . | 599 75 | |
| Contract, Edwin F. Bowker . . | 2,346 59 | |
| Hardware, tools, and repairs . . | 276 61 | |
| Iron work . . . . . | 122 42 | |
| Labor, as per pay-rolls . . . . | 13,873 23 | |
| Lettering sign . . . . . | 3 00 | |
| Lumber . . . . . | 25 56 | |
| Medical attendance to injured man | 10 00 | |
| Oil and oat-meal . . . . . | 17 82 | |
| Packing . . . . . | 5 30 | |
| Painting and glazing . . . . . | 24 94 | |
| Paving . . . . . | 45 40 | |
| Amounts carried forward . . | $20,552 31 | $35,436 06 |

| | | | |
|---|---|---|---|
| | Amounts brought forward . | $20,552 31 | $35,436 06 |
| For | Pipe . . . . . | 6,698 08 | |
| | Sand and gravel . . . . . | 13 50 | |
| | Stone . . . . . | 396 00 | |
| | Street-roller . . . . . | 103 85 | |
| | Teaming . . . . . | 1,052 15 | |
| As per item No. 34 of expenses . . . . . | | | $28,815 89 |
| | Balance unexpended . . . . . | | $6,620 17 |

**Sewers (Construction, Bath Street).**

| | | |
|---|---|---|
| Amount appropriated . . . . . | | $22,000 00 |
| Revenue . . . . . | | 279 00 |
| | | $22,279 00 |

RECEIVED.

| | | | |
|---|---|---|---|
| For | Premium on bonds . . . . | 275 00 | |
| | Sale of old material . . . . | 4 00 | |
| As per item No. 27 of receipts . . . | | 279 00 | |

EXPENDED.

| | | | |
|---|---|---|---|
| For | Advertising . . . . . | 8 10 | |
| | Building fence . . . . . | 42 26 | |
| | Carpenter work . . . . . | 41 96 | |
| | Cement . . . . . | 37 50 | |
| | Contract, A. W. Bryne . . . . | 7,065 05 | |
| | Grading and sodding . . . . . | 100 00 | |
| | Labor, as per pay-rolls . . . . | 1,048 33 | |
| | Teaming . . . . . | 1 50 | |
| As per item No. 35 of expenses . . . . . | | | $8,344 70 |
| | Balance unexpended . . . . . | | $13,934 30 |

**Sewers (Construction, Belmont).**

| | | |
|---|---|---|
| Amount unexpended from last year . . . . . | | $16,891 56 |
| Amount appropriated . . . . . | | 8,000 00 |
| | Amount carried forward . . | $24,891 56 |

| | |
|---|---|
| Amount brought forward | $24,891 56 |
| Amount transferred to | 500 00 |
| | $25,391 56 |
| Less amount transferred from | 261 36 |
| | $25,130 20 |

EXPENDED.

| | | |
|---|---|---|
| For Boiler work | $60 52 | |
| Bricks | 4,270 10 | |
| Canvas | 16 65 | |
| Care of injured man | 13 92 | |
| Carpenter work | 188 40 | |
| Castings | 63 76 | |
| Cement | 1,850 75 | |
| Cordage | 4 16 | |
| Excavating | 589 15 | |
| Expressage | 11 05 | |
| Fuel | 280 87 | |
| Hardware, tools, and repairs | 444 53 | |
| Hose | 51 25 | |
| Labor, as per pay-rolls | 14,136 78 | |
| Lumber | 1,229 48 | |
| Oil and wicks | 19 48 | |
| Paint | 7 15 | |
| Pipe | 64 38 | |
| Powder | 41 16 | |
| Sand | 12 00 | |
| Steam fittings | 3 65 | |
| Teaming | 850 32 | |
| Use of engine and pump | 848 50 | |
| Water supply | 20 67 | |
| Wire-rope | 51 52 | |
| As per item No. 36 of expenses | | $25,130 20 |

**Sewers (Maintenance).**

| | |
|---|---|
| Amount appropriated | $17,300 00 |
| Estimated revenue | 1,700 00 |
| Amount carried forward | $19,000 00 |

| | | |
|---|---|---|
| Amount brought forward . . . . . | | $19,000 00 |
| Less amount transferred from . . . . . | | 4,200 00 |
| | | $14,800 00 |

RECEIVED.

| | | |
|---|---|---|
| From City of Somerville for dredging Bridge Street sewer outlet ($\frac{5}{9}$ expense) | $1,141 28 | |
| For Repairs on same . . . . . | 34 59 | |
| Building Catch Basin and repairing fountain . . . . . | 107 46 | |
| Horse . . . . . | 150 00 | |
| Old materials . . . . . | 44 00 | |
| Setting Barrett trap on lot corner of River Street and Putnam Avenue . . . . . | 12 42 | |
| As per item No. 28 of receipts . . . | 1,489 75 | |

EXPENDED.

| | | |
|---|---|---|
| For Binding plans . . . . . | $17 50 | |
| Bricks . . . . . | 567 32 | |
| Carpenter work . . . . . | 9 30 | |
| Carriage hire . . . . . | 14 50 | |
| Castings and iron work . . | 111 86 | |
| Cement . . . . . | 571 70 | |
| Cleaning catch-basins . . . | 1,239 00 | |
| Cordage . . . . . | 17 00 | |
| Damages . . . . . | 25 00 | |
| Dredging Bridge street sewer | 1,687 00 | |
| Fence, building and painting | 138 18 | |
| Fuel . . . . . | 34 05 | |
| Hardware, tools and repairs . | 425 37 | |
| Harness and repairs . . . | 42 79 | |
| Hay and grain . . . . . | 232 47 | |
| Horse . . . . . | 240 00 | |
| Hose . . . . . | 68 40 | |
| Horse-shoeing and clipping . | 87 50 | |
| Labor, as per pay-rolls . . | 6,843 48 | |
| Lanterns . . . . . | 5 00 | |
| Amounts carried forward . . | $12,377 42 | $14,800 00 |

| | | |
|---|---|---|
| Amounts brought forward . | $12,377 42 | $14,800 00 |
| For Lumber . . . . . | 378 63 | |
| Moving engine . . . . . | 10 00 | |
| Paving . . . . . | 26 36 | |
| Painting and glazing . . . | 3 55 | |
| Permit-books . . . . . | 10 25 | |
| Piles . . . . . | 98 88 | |
| Pipe . . . . . | 225 98 | |
| Printing . . . . . | 9 00 | |
| Repairing boiler and engine . | 324 17 | |
| Leak . . . . . | 11 88 | |
| Rubber clothing . . . . | 98 20 | |
| Sand . . . . . | 19 00 | |
| Supplies . . . . . | 14 33 | |
| Teaming . . . . . | 474 44 | |
| Tide-gates . . . . . | 220 00 | |
| Veterinary surgeon . . . | 25 00 | |
| Wagon repairs . . . . . | 167 75 | |
| Water supply . . . . . | 92 80 | |
| As per item No. 37 of expenses . | | $14,587 64 |
| Balance unexpended . . | | $212 36 |

**Shade Trees and Public Grounds.**

| | |
|---|---|
| Amount appropriated . . . . | $5,000 00 |
| Revenue . . . . . | 46 41 |
| | $5,046 41 |

RECEIVED.

| | |
|---|---|
| For trimming and removing trees, As per item No. 29 of receipts . | $46 41 |

EXPENDED.

| | | |
|---|---|---|
| For Extra labor . . . . . | $30 00 | |
| Gravel . . . . . | 90 00 | |
| Hardware, tools and repairs . | 32 37 | |
| Hose . . . . . | 16 50 | |
| Amounts carried forward . . | $168 87 | $5,046 41 |

| | | | |
|---|---|---|---|
| Amounts brought forward . | | $168 87 | $5,046 41 |
| For Labor, as per pay-rolls . . . | | 3,611 97 | |
| Lumber . . . . . | | 31 33 | |
| Manure . . . . . | | 361 25 | |
| Plants and seeds . . . . | | 96 20 | |
| Printing . . . . . | | 2 25 | |
| Wagon . . . . . | | 150 00 | |
| Water supply . . . . . | | 2 81 | |
| | | $4,424 68 | |
| Grading Dana Square | | | |
| Scrapings, etc. . . | $186 25 | | |
| Teaming . . . | 313 75 | | |
| | | 500 00 | |
| As per item No. 38 of expenses . | | | 4,924 68 |
| Balance unexpended . . | | | $121 73 |

**Sinking Funds (Commissioners of).**

| | | |
|---|---|---|
| Amount of funds, Nov. 30th, 1886 | | $467,182 12 |
| RECEIVED. | | |
| From City Treasurer, being the amount appropriated by the city council, to be derived from taxation . . . . . | $59,695 00 | |
| For premiums and interest accumulations to Nov. 30, 1887 . . | 21,687 47 | |
| | | 81,382 47 |
| | | $548,564 59 |
| EXPENDED. | | |
| For Cambridge bonds maturing Oct. 1, 1887 (Low Land Loan) . | | 120,000 00 |
| Amount of Funds, Nov. 30, 1887 | | $428,564 59 |

## State Aid.

| | |
|---|---|
| Amount appropriated . . . . | $2,250 00 |
| Estimated revenue . . . . . | 11,500 00 |
| | $13,750 00 |

RECEIVED.

| | | |
|---|---|---|
| From Commonwealth of Mass. . | $10,942 00 | |
| Other cities, reimbursements . | 84 00 | |
| As per item No. 31 of receipts . | $11,026 00 | |

EXPENDED.

| | | |
|---|---|---|
| For Clerk of Com., C. L. Russell | $480 00 | |
| Indigent aid . . . . . | 2,865 00 | |
| Military aid . . . . . | 9,524 00 | |
| As per item No. 40 of expenses . | | $12,869 00 |
| Balance unexpended . . | | $881 00 |

## Stationery and Printing.

| | |
|---|---|
| Amount appropriated . . . . . | $3,000 00 |
| Revenue . . . . . | 2 00 |
| | $3,002 00 |

RECEIVED.

| | |
|---|---|
| For postage stamps, as per item No. 32 of receipts . . . . . | $2 00 |

EXPENDED.

| | | |
|---|---|---|
| For City documents . . . . . | $1,066 74 | |
| Printing . . . . . | 445 30 | |
| Stationery . . . . . | 1,483 15 | |
| As per item No. 41 of expenses . . . | | $2,995 19 |
| Balance unexpended . . . . | | $6 81 |

**Street Department (Land for City Yard).**

| | | |
|---|---|---|
| Amount appropriated | | $10,000 00 |

EXPENDED.

| | | |
|---|---|---|
| For Examination of title | $25 00 | |
| Fence | 74 78 | |
| Land | 9,900 00 | |
| As per item No. 42 of expenses | | $9,999 78 |
| Balance unexpended | | 22 |

**Street Department (Paving).**

| | | |
|---|---|---|
| Amount appropriated | | $7,000 00 |
| Estimated revenue | | 3,000 00 |
| Surplus revenue | | 2,882 07 |
| Amount transferred to | | 4,000 00 |
| | | $16,882 07 |
| Less amount transferred from | | 1,180 00 |
| | | $15,702 07 |

RECEIVED.

| | | |
|---|---|---|
| For Curbstones | 12 03 | |
| Labor, and paving materials | 1,131 20 | |
| Sidewalk assessments | 4,738 84 | |
| As per item No. 33 of receipts | $5,882 07 | |

EXPENDED.

| | | |
|---|---|---|
| For Advertising | 135 28 | |
| Bricks | 3,936 01 | |
| Cement | 3 00 | |
| Cutting blocks, contract | 772 67 | |
| Curbstones | 298 24 | |
| Edgestones | 2,334 81 | |
| Gravel | 48 50 | |
| Labor, as per pay-rolls | 7,261 19 | |
| Level | 5 00 | |
| Amounts carried forward | $14,794 70 | $15,702 07 |

| | | | |
|---|---|---|---|
| | Amounts brought forward . . | $14,794 70 | $15,702 07 |
| For | Oil . . . . . | 32 70 | |
| | Rent of wharf . . . . . | 100 00 | |
| | Sand . . . . . | 22 75 | |
| | Teaming . . . . . | 30 00 | |
| | Tools . . . . . | 11 84 | |
| | Towing schooner to City Wharf . | 15 00 | |
| | Twine, chalk and line . . . . | 4 52 | |
| As per item No. 43 of expenses . . . . . | | | $15,011 51 |
| | Balance unexpended . . . . . | | $690 56 |

**Street Department (Paving, Harvard Street).**

| | | | |
|---|---|---|---|
| Amount appropriated . . . . . | | | $3,000 00 |
| | EXPENDED. | | |
| For | Granite blocks . . . . . | $2,127 80 | |
| | Gravel . . . . . | 68 76 | |
| | Labor, as per pay-rolls . . . . | 803 44 | |
| As per item No. 44 of expenses . . . . . | | | $3,000 00 |

**Street Department (Paving, Main Street).**

| | | | |
|---|---|---|---|
| Amount appropriated . . . . . | | | $18,000 00 |
| Less amount transferred from . . . . . | | | 1,500 00 |
| | | | $16,500 00 |
| | EXPENDED. | | |
| For | Gravel . . . . . | $698 24 | |
| | Labor, as per pay-rolls . . . . | 3,496 77 | |
| | Paving blocks . . . . . | 11,565 97 | |
| | Rent of wharf . . . . . | 240 00 | |
| As per item No. 45 of expenses . . . . . | | | $16,000 98 |
| | Balance unexpended . . . . . | | $499 02 |

**Street Department (Paving, North River Flagging Stone).**

| | | | |
|---|---|---|---|
| Amount appropriated . . . . . | | | 1,000 00 |
| Amount transferred to . . . . . | | | 80 00 |
| | Amount carried forward . . . . . | | $1,080 00 |

| | |
|---|---|
| Amount brought forward . . . . . | $1,080 00 |

EXPENDED.

| | |
|---|---|
| For North River flagging stone, as per item No. 46 of expenses . . . . . | 1,080 00 |

**Street Department (Repairs).**

| | |
|---|---|
| Amount appropriated . . . . . | 81,000 00 |
| Estimated revenue . . . . . | 2,000 00 |
| Surplus revenue . . . . . | 563 35 |
| Amount transferred to . . . . . | 6,500 00 |
| | $90,063 35 |

RECEIVED.

| | | |
|---|---|---|
| For Ashes . . . . . | 289 60 | |
| Chopping blocks . . . . . | 21 25 | |
| Error in pay-roll . . . . . | 12 00 | |
| Filling . . . . . | 52 25 | |
| Frame for wheel-roller . . . . | 65 00 | |
| Gravel . . . . . | 218 54 | |
| Horses . . . . . | 160 00 | |
| Labor and teaming . . . . . | 176 74 | |
| Trimming trees . . . . | 155 77 | |
| Leveling and cleaning Parker street district . . | 50 00 | |
| Manure . . . . . | 361 25 | |
| Old material . . . . . | 103 50 | |
| Sand . . . . . | 12 97 | |
| Scrapings . . . . . | 867 45 | |
| Unfinished sign posts . . . . | 17 03 | |
| As per item No. 34 of receipts . . . | $2,563 35 | |

EXPENDED.

| | | |
|---|---|---|
| For Advertising . . . . . | $29 40 | |
| Axle grease . . . . . | 35 30 | |
| Belting . . . . . | 9 15 | |
| Brooms and flanges . . . . . | 94 20 | |
| Carpenter work . . . . . | 67 30 | |
| Amounts carried forward . . | $235 35 | $90,063 35 |

| | | | |
|---|---|---|---|
| | Amounts brought forward . . . | $235 35 | $90,063 35 |
| For | Carriage-hire for Committee . . | 54 00 | |
| | Catch-basin . . . . . | 34 18 | |
| | Currycombs . . . . . | 7 00 | |
| | Directory . . . . . | 2 50 | |
| | Drugs and paints . . . . . | 24 15 | |
| | Expressage and freight . . . . | 15 34 | |
| | Fuel . . . . . | 563 12 | |
| | Gas . . . . . | 236 63 | |
| | Gas-fittings . . . . . | 7 75 | |
| | Hardware, tools and repairs . . | 756 26 | |
| | Harnesses and repairs . . . . | 668 61 | |
| | Hay and grain . . . . . | 3,968 30 | |
| | Horses . . . . . | 1,307 50 | |
| | Hose . . . . . | 26 65 | |
| | Iron and steel . . . . . | 450 27 | |
| | Iron work . . . . . | 210 34 | |
| | Labor, as per pay-rolls | | |
| | Regular men . $37,786 05 | | |
| | Transient men 20,451 25 | | |
| | | 58,237 30 | |
| | Lanterns . . . . . | 27 00 | |
| | Lumber and cement . . . . . | 914 56 | |
| | Oil . . . . . | 45 64 | |
| | Packing . . . . . | 10 19 | |
| | Printing . . . . . | 18 75 | |
| | Refreshments for Committee . . | 22 00 | |
| | Removing night-soil . . . . . | 8 00 | |
| | Salary of Supt. John McSorley . | 1,700 00 | |
| | Salt . . . . . | 34 50 | |
| | Screenings . . . . . | 864 47 | |
| | Sealing city scales . . . . . | 1 24 | |
| | Sponges . . . . . | 24 79 | |
| | Stamps, rubber . . . . . | 3 80 | |
| | Step-ladder . . . . . | 2 50 | |
| | Stone . . . . . | 6,915 23 | |
| | Street-signs . . . . . | 145 00 | |
| | Supplies, sundry . . . . . | 22 70 | |
| | Amounts carried forward . | $77,566 62 | $90,063 35 |

| | | | |
|---|---|---|---|
| | Amounts brought forward . | $77,566 62 | $90,063 35 |
| For | Sweeping machine . . . . . | 440 00 | |
| | Teaming. . . . . | 11,263 47 | |
| | Telephone, rent . . . . . | 20 00 | |
| | Trespass on Longfellow estate . | 25 00 | |
| | Use of sleigh . . . . . | 6 00 | |
| | Veterinary surgeon and medicines | 186 50 | |
| | Wagon repairs . . . . . | 120 88 | |
| | Water supply . . . . . | 18 22 | |
| | Wheels, spokes, etc. . . . . | 272 94 | |
| | Wire screen . . . . . | 6 85 | |
| | As per item No. 47 of expenses . . . . . | | $89,925 48 |
| | Balance unexpended . . . . . | | $137 87 |

**Street Department, Repairs, (Bulkhead, Mt. Auburn Street).**

| | | |
|---|---|---|
| Amount appropriated . . . . . | | $5,000 00 |
| Less amount transferred from . . . . . | | 2,000 00 |
| | | $3,000 00 |

EXPENDED.

| | | | |
|---|---|---|---|
| For | Bulkhead (J. P. Perkins & Son contract) . . . . . | $2,851 80 | |
| | Inspector, Geo. F. Greenlaw . . | 122 50 | |
| | As per item No. 48 of expenses . . . . . | | $2,974 30 |
| | Balance unexpended . . . . . | | $25 70 |

**Street Department (Repairs, Steam Roller).**

| | |
|---|---|
| Amount appropriated . . . . . | $5,000 00 |

EXPENDED.

| | |
|---|---|
| For one 15-ton Aveling & Porter Steam Roller, No. 2235, as per item No. 49 of expenses . . | $5,000 00 |

## Street Department (Watering).

| | | |
|---|---|---|
| Amount appropriated | | $10,500 00 |
| Estimated revenue | | 10,500 00 |
| Surplus revenue | | 1,741 00 |
| | | $22,741 00 |
| Less amount transferred to Street Department, Paving | $1,900 00 | |
| Less amount transferred to Street Department, Repairs | 500 00 | |
| | | 2,400 00 |
| | | 20,341 00 |

RECEIVED.

| | | |
|---|---|---|
| From sundry persons for part expense of watering sundry streets, as per item No. 35 of receipts | $12,241 00 | |

EXPENDED.

| | | |
|---|---|---|
| For Account books | 13 50 | |
| Advertising and printing | 15 75 | |
| Axles | 7 70 | |
| Care of Superintendent's horse | 211 00 | |
| Hardware | 7 44 | |
| Hose | 66 00 | |
| Labor, as per pay-roll, " washing carts | 40 00 | |
| " Watering streets, " Use of men and horses per contracts | 13,520 10 | |
| " Repairing and painting carts | 361 81 | |
| Oil, etc. | 7 17 | |
| Repairs on sprinklers | 29 95 | |
| Salary of Superintendent Chas. A. Brown | 532 00 | |
| Sponges | 5 03 | |
| Springs | 40 27 | |
| Amounts carried forward | $14,857 72 | $20,341 00 |

| | | |
|---|---|---|
| Amounts brought forward . | $14,857 72 | $20,341 00 |
| For Stand-pipes . . . . . | 241 94 | |
| Valves . . . . . | 100 30 | |
| Water . . . . . | 5,126 09 | |
| As per item No. 50 of expenses . . . . . | | $20,326 05 |
| Balance unexpended . . . . . | | $14 95 |

**Tax (Corporation).**

RECEIVED.

| | |
|---|---|
| From the Commonwealth of Massachusetts for the year 1887, as per item No. 36 of receipts . | $55,163 51 |

**Tax (National Bank).**

RECEIVED.

| | |
|---|---|
| From the Commonwealth of Massachusetts for the year 1887, as per item No. 37 of receipts . | $17,613 97 |

EXPENDED.

| | |
|---|---|
| For amount paid the Commonwealth of Massachusetts for the year 1887, for non-resident bank stock, as per item No. 52 of expenses . . | $6,223 81 |
| Balance . . . . . | $11,390 16 |

**Tax (County).**

| | |
|---|---|
| Amount paid the County of Middlesex for the year 1887, as per item No. 51 of expenses . . | $32,785 33 |

**Tax Lien Account.**

| | |
|---|---|
| Paid, Nov. 30, 1886 . . . . . | $17,656 63 |

RECEIVED.

| | |
|---|---|
| The value of tax titles to sundry persons, as per item No. 38 of receipts . . . . . | 609 28 |
| Amount carried forward . . . . . | $17,047 35 |

| | |
|---|---|
| Amount brought forward . . . . . | $17,047 35 |

EXPENDED.

| | |
|---|---|
| For tax titles, as per item No. 53 of expenses . | $86 65 |
| Balance Nov. 30, 1887 . . . . . | $17,134 00 |

**Tax (State.)**

| | |
|---|---|
| Amount paid the Commonwealth of Mass. for the year 1887, as per item No. 54 of expenses . . | $70,110 00 |

**Taxes of 1881.**

| | |
|---|---|
| Balance uncollected Nov. 30, 1886 . . . . . | $9,299 09 |

RECEIVED.

| | |
|---|---|
| From sundry persons, as per item No. 39 of receipts . . . . . | 22 00 |
| Balance uncollected Nov. 30, 1887 . . . . . | $9,277 09 |

**Taxes of 1882.**

| | |
|---|---|
| Balance uncollected Nov. 30, 1886 . . . . . | $7,726 24 |

RECEIVED.

| | |
|---|---|
| From sundry persons, as per item No. 40 of receipts . . . . . | 51 96 |
| Balance uncollected Nov. 30, 1887 . . . . . | $7,674 28 |

**Taxes of 1883.**

| | |
|---|---|
| Balance uncollected Nov. 30, 1886 . . . . . | $9,038 33 |

RECEIVED.

| | |
|---|---|
| From sundry persons, as per item No. 41 of receipts . . . . . | 132 08 |
| Balance uncollected Nov. 30, 1887 . . . . . | $8,906 25 |

**Taxes of 1884.**

| | |
|---|---|
| Balance uncollected Nov. 30, 1886 . . . . . | 9,232 34 |
| RECEIVED. | |
| From sundry persons, as per item No. 42 of receipts . . . . . | 415 76 |
| Balance uncollected Nov. 30, 1887 . . . . . | $8,816 58 |

**Taxes of 1885.**

| | |
|---|---|
| Balance uncollected Nov. 30, 1886 . . . . . | 13,704 40 |
| RECEIVED. | |
| From sundry persons, as per item No. 43 of receipts . . . . . | 3,386 40 |
| Balance uncollected Nov. 30, 1887 . . . . . | $10,318 00 |

**Taxes of 1886.**

| | |
|---|---|
| Balance of assessors' warrant uncollected Nov. 30, 1886 . . . . . | $74,497 50 |
| Amount of assessors' supplemental warrants to Nov. 30, 1887 . . . . . | 510 85 |
| | $75,008 35 |
| RECEIVED. | |
| From sundry persons, as per item No. 44 of receipts . . . . . | 60,638 20 |
| Balance uncollected Nov. 30, 1887 . . . . . | $14,370 15 |

**Taxes of 1887.**

| | |
|---|---|
| Amount of assessors' original warrant . . . . | $995,130 10 |
| Amount of assessors' supplemental warrants . . | 834 80 |
| | $995,964 90 |
| RECEIVED. | |
| From sundry persons, as per item No. 45 of receipts . . . . . | $911,523 60 |
| Balance uncollected Nov. 30, 1887 . . . . . | $84,441 30 |

**Water Works (Abatements.)**

| | |
|---|---|
| Amount appropriated . . . . . | $4,500 00 |

EXPENDED.

| | |
|---|---|
| For abatements (registrar's certificates) as per item No. 55 of expenses . . . . . | $4,321 96 |
| Balance unexpended . . . . . | 178 04 |

**Water Works (Construction).**

| | |
|---|---|
| Amount appropriated . . . . . | $20,000 00 |
| Revenue . . . . . | 7 50 |
| | $20,007 50 |

RECEIVED.

| | | |
|---|---|---|
| For teaming pipe, as per item No. 46 of receipts . . . . . | $7 50 | |

EXPENDED.

| | | |
|---|---|---|
| For Boiler fronts . . . . . | $425 97 | |
| Carpenter work . . . . . | 314 94 | |
| Castings . . . . . | 29 40 | |
| Catch-basins . . . . . | 107 46 | |
| Fuel . . . . . | 12 00 | |
| Gate boxes . . . . . | 175 50 | |
| Labor, as per pay-rolls . . . . | 3,524 50 | |
| Extra . . . . . | 20 25 | |
| Lead . . . . . | 393 94 | |
| Lumber and cement . . . . . | 118 59 | |
| Meters . . . . . | 452 50 | |
| Packing . . . . . | 38 48 | |
| Paving blocks . . . . . | 35 00 | |
| Pipe and fittings . . . . . | 11,961 70 | |
| Post hydrants and water gates . | 1,343 17 | |
| Stone . . . . . | 15 70 | |
| Stone-work . . . . . | 11 00 | |
| Teaming . . . . . | 583 75 | |
| Amounts carried forward . . . | $19,563 85 | $20,007 50 |

| | | |
|---|---|---|
| Amounts brought forward . | $19,563 85 | $20,007 50 |
| As per item No. 56 of expenses . . . . . | | $19,563 85 |
| Balance unexpended . . . . . | | 443 65 |

**Water Works (Construction, Fresh Pond).**

| | |
|---|---|
| Amount unexpended from last year . . . . . | $28,020 20 |
| Revenue . . . . . | 112 50 |
| | $28,132 70 |

RECEIVED.

| | | |
|---|---|---|
| For premium on bonds, as per item No. 47 of receipts . . . . . | 112 50 | |

EXPENDED.

| | | |
|---|---|---|
| For Carriage-hire . . . . . | $16 00 | |
| Examination of titles . . . . . | 10 00 | |
| Land (Mary Black) . . . . . | 4,000 00 | |
| Land (Spencer Child) . . . . | 7,500 00 | |
| As per item No. 57 of expenses . . . . . | | $11,526 00 |
| Balance unexpended . . . . . | | $16,606 70 |

**Water Works (Construction, Stony Brook Additional Water Supply).**

| | |
|---|---|
| Amount unexpended from last year . . . . . | $93,192 46 |
| Additional appropriation . . . . . | 68,100 00 |
| Revenue . . . . . | 1,141 72 |
| | $162,434 18 |

RECEIVED.

| | | |
|---|---|---|
| For Car fares . . . . . | $42 00 | |
| Premium on bonds . . . . . | 812 50 | |
| Testing pipes . . . . . | 287 22 | |
| As per item No. 48 of receipts . . . | $1,141 72 | |
| Amount carried forward . . . . . | | $162,434 18 |

| | | | |
|---|---|---|---|
| Amount brought forward . . . | | | $162,434 18 |

EXPENDED.

| | | | |
|---|---|---|---|
| For Arch for bridge . . . . . | | $390 00 | |
| Boat and oars . . . . . | | 52 08 | |
| Building dam at Stony Brook, H. H. Pike & Son : — | | | |
| Contract . . . . . | | 40,651 97 | |
| Extra labor and materials . | | 9,302 00 | |
| Car fares . . . . . | | 752 01 | |
| Carpenter work . . . . . | | 72 98 | |
| Carriage hire . . . . . | | 36 50 | |
| Casks . . . . . | | 13 50 | |
| Castings . . . . . | | 46 45 | |
| Celebration, connected with the formal opening of the Stony Brook additional water supply, Nov. 5, 1887, expense for | | | |
| Carriage hire . . | $100 00 | | |
| Invitations . . . | 73 75 | | |
| Menu cards . . . | 25 00 | | |
| Dinner . . . . | 241 00 | | |
| Tablet . . . . | 218 47 | | |
| | | 658 22 | |
| Cobblestones . . . . . | | 173 38 | |
| Copper wire screens . . . . . | | 890 00 | |
| Expenses of City Engineer to stone quarries . . . . . | | 17 00 | |
| Expense of coffer-dam contract, John T. Scully . . . . . | | 75 00 | |
| Expert testimony . . . . . | | 156 45 | |
| Fittings . . . . . | | 102 40 | |
| Freight . . . . . | | 266 41 | |
| Fuel . . . . . | | 1,591 87 | |
| Gas-fittings . . . . . | | 11 08 | |
| Gate-house, M. N. Stearns' contract . . . . . | | 1,500 00 | |
| Amounts brought forward . . | | $56,759 30 | $162,434 18 |

| | | | |
|---|---|---|---|
| | Amounts brought forward . . | $56,759 30 | $162,434 18 |
| For | Gate-chamber, sluice gates and hoisting gear . . . . . | 1,750 00 | |
| | Gate-stands . . . . . | 85 00 | |
| | Indicators . . . . . | 16 00 | |
| | Kiernan and Grace suit, settlement. . . . . | 5,298 31 | |
| | Auditor's fee . . . . . | 570 00 | |
| | Labor, as per pay-rolls (engineers) | 3,310 50 | |
| | " " " (laborers) . | 22,939 97 | |
| | Lumber . . . . . | 155 82 | |
| | Mason-work . . . . . | 60 75 | |
| | Medical attendance to injured man | 19 00 | |
| | Moving engine . . . . . | 11 00 | |
| | Oil . . . . . | 82 94 | |
| | Packing . . . . . | 14 99 | |
| | Paving . . . . . | 40 50 | |
| | Photographs . . . . . | 39 50 | |
| | Pile-driving . . . . . | 130 00 | |
| | Pipe . . . . . | 3,429 14 | |
| | Policeman, special . . . . . | 281 60 | |
| | Professional services: — | | |
| | B. B. Johnson, Esq. . . . . | 100 00 | |
| | Russell and Putnam . . . . | 150 00 | |
| | Re-building dam for Roberts mill . | 300 00 | |
| | Recording deeds, etc. . . . . | 9 09 | |
| | Refreshments . . . . . | 17 46 | |
| | Repairing pumps . . . . . | 11 95 | |
| | Repairing streets in Waltham and Watertown . . . . . | 175 45 | |
| | Running pumps for Roberts mill . | 1,194 60 | |
| | Services of city engineer, Wm. S. Barbour . . . . . | 1,500 00 | |
| | Services of Hiram Blood (fire engineer) . . . . . | 161 42 | |
| | Sleeves . . . . . | 89 68 | |
| | Stenographer . . . . . | 470 80 | |
| | Sundries . . . . . | 7 56 | |
| | Amounts carried forward, . | $99,182 33 | $162,434 18 |

| | | |
|---|---|---|
| Amounts brought forward . . | $99,182 33 | $162,434 18 |
| For Teaming and extra labor . . . | 7,343 88 | |
| Telegrams . . . . . | 3 07 | |
| Testing-pipe . . . . . | 16 77 | |
| Tools . . . . . | 159 52 | |
| Use of train and rails (Fitchburg R. R. Co.) . . . . . | 3,742 60 | |
| Valves, etc. . . . . | 400 73 | |
| Water for Roberts mill . . . | 421 21 | |
| Witness fees, etc. . . . . | 31 75 | |
| As per item No. 58 of expenses . . . . . | | $111,301 86 |
| Balance unexpended . . | | $51,132 32 |

**Water Works (Interest on Water Loan).**

| | |
|---|---|
| Amount appropriated . . . . . | $97,200 00 |
| Revenue . . . . . | 172 22 |
| | $97,372 22 |

RECEIVED.

| | | |
|---|---|---|
| For accrued interest on bonds sold, as per item No. 49 of receipts . . . | $172 22 | |

EXPENDED.

| | | |
|---|---|---|
| For Interest on Funded Loan: — | | |
| Coupon bonds . . . . . | $83,780 00 | |
| Registered bonds . . . . . | 13,575 00 | |
| As per item No. 59 of expenses . . . . . | | $97,355 00 |
| Balance unexpended . . . . . | | $17 22 |

**Water Works (Maintenance).**

| | |
|---|---|
| Amount appropriated . . . . . | $37,500 00 |
| Revenue . . . . . | 861 19 |
| Amount carried forward . . . . . | $38,361 19 |

| | | |
|---|---|---|
| Amount brought forward . . . . . | | $38,361 19 |

RECEIVED.

| | | |
|---|---|---|
| For Error in bill . . . . . | $9 50 | |
| Sale of horse . . . . . | 100 00 | |
| Stock and labor . . . . . | 751 69 | |
| As per item No. 50 of receipts . . . | $861 19 | |

EXPENDED.

| | | |
|---|---|---|
| For Analysis of water (Dr. E. S. Wood) | $15 00 | |
| Boiler front . . . . . | 425 98 | |
| Carpenter work . . . . . | 395 88 | |
| Carriage hire . . . . . | 16 00 | |
| Car tickets . . . . . | 120 00 | |
| Castings . . . . . | 123 21 | |
| Clerical assistance in office . . | 895 28 | |
| Covering steam pipes . . . . | 60 00 | |
| Directories . . . . . | 5 00 | |
| Drain . . . . . | 11 50 | |
| Elm trees . . . . . | 100 00 | |
| Engine supplies . . . . . | 258 32 | |
| Expressage . . . . . | 47 18 | |
| Fittings . . . . . | 310 72 | |
| Fountain pens . . . . . | 5 00 | |
| Fuel . . . . . | 9,642 24 | |
| Furniture and repairs . . . . | 25 00 | |
| Gas . . . . . | 142 40 | |
| Gas-fittings . . . . . | 1 42 | |
| Gate-boxes . . . . . | 285 35 | |
| Gravel . . . . . | 26 25 | |
| Hardware, tools and repairs . . | 913 91 | |
| Harnesses and repairs . . . . | 60 70 | |
| Hay and grain . . . . . | 541 63 | |
| Horses . . . . . | 335 00 | |
| Horse-shoeing . . . . . | 118 28 | |
| Hose and repairs . . . . . | 76 25 | |
| Hydrant jackets . . . . . | 16 00 | |
| Labor, as per pay-rolls . . . . | 12,809 07 | |
| Amounts carried forward . . | $27,782 57 | $38,361 19 |

| | | | |
|---|---|---|---|
| | Amounts brought forward . | $27,782 57 | $38,361 19 |
| For | Lumber, lime and cement . . . | 394 61 | |
| | Mason-work . . . . . | 21 00 | |
| | Mercurial damper regulator . . | 150 00 | |
| | Meters and repairs . . . . . | 74 75 | |
| | Newspapers . . . . . | 16 00 | |
| | Painting and glazing . . . . | 144 47 | |
| | Photographs . . . . . | 10 00 | |
| | Pipe and repairs . . . . . | 146 36 | |
| | Plumbing . . . . . | 40 33 | |
| | Printing . . . . . | 40 00 | |
| | Recording deeds, etc. . . . . | 2 65 | |
| | Removing night soil . . . . . | 4 00 | |
| | Rent of box in Safety Deposit Vaults . . . . . | 40 00 | |
| | Rent of office and shop . . . . | 600 00 | |
| | Repairing Boilers . . . . . | 211 11 | |
| | Telephone line . . . | 2 00 | |
| | Wagons, etc. . . . . | 231 20 | |
| | Rubber boots and repairs . . . | 11 65 | |
| | Salary of, Supt. Hiram Nevons . | 2,049 04 | |
| | Registrar, Walter H. Harding . . . . . | 1,800 00 | |
| | Clerk of Board, Walter H. Harding . . . | 182 04 | |
| | Clerk of Board, Justin A. Jacobs . . . . | 17 96 | |
| | Engineer, E. C. Brooks | 1,500 00 | |
| | Foreman, John L. Harrington . . . . . | 1,170 00 | |
| | Salt . . . . . | 11 50 | |
| | Sand screen . . . . . | 6 50 | |
| | Sealing scales . . . . . | 1 09 | |
| | Sleigh, etc. . . . . | 52 55 | |
| | Standard food . . . . . | 6 00 | |
| | Stationery . . . . . | 159 93 | |
| | Sundries . . . . . | 44 59 | |
| | Teaming and extra labor . . . | 569 23 | |
| | Amounts carried forward . . | $37,493 13 | $38,361 19 |

| | | |
|---|---|---|
| Amounts brought forward . | $37,493 13 | $38,361 19 |
| For Telegrams . . . . . | 3 43 | |
| Test-boring . . . . . | 30 00 | |
| Torch, etc. . . . . | 6 50 | |
| Travelling expenses of Supt. . . | 37 36 | |
| Wheel roller . . . . . | 32 50 | |
| Wood-pulleys . . . . . | 7 70 | |
| As per item No. 60 of expenses . . . . . | | $37,610 62 |
| Balance unexpended . . . . . | | $750 57 |

**Water Works (Rates, Fines, etc.).**

RECEIVED.

| | | |
|---|---|---|
| From sundry persons, for water rates, fines, etc., as per item No. 51 of receipts . . . . . | | $211,300 82 |
| Deduct as follows: — | | |
| Am't carried to Abatement account | $4,321 96 | |
| " Construction " | 19,556 35 | |
| " Interest " | 97,182 78 | |
| " Maintenance " | 36,749 43 | |
| " Sinking Fund " | 51,700 48 | |
| | | $209,511 00 |
| | | $1,789 82 |

EXPENDED.

| | |
|---|---|
| For Water rates refunded, as per item No. 61 of expenses . . . . . | 1,789 82 |

**Water Works (Sinking Fund).**

| | | |
|---|---|---|
| Amount of Fund, Nov. 30, 1886 . . . . . | | $892,005 97 |

RECEIVED.

| | | |
|---|---|---|
| For Amount due and appropriated from the revenue of the water rates, fines, etc. . . . . | $51,465 00 | |
| Amounts carried forward . . | $51,465 00 | $892,005 97 |

| | | |
|---|---|---|
| Amounts brought forward . | $51,465 00 | $892,005 97 |
| For Premiums and interest accumulations . . . . . | 43,449 52 | |
| Surplus receipts of Water Works | 1,676 52 | |
| | | 96,591 04 |
| | | $988,597 01 |

EXPENDED.

| | |
|---|---|
| For Water bonds matured April 1, 1887 . . . | 150,000 00 |
| Amount of fund Nov. 30, 1887 . . . . . | $838,597 01 |

**Water Works (Supplies).**

RECEIVED.

| | |
|---|---|
| For Supply pipes and fittings as per item No. 53 of receipts . . . . . | $6,155 09 |
| Deduct surplus carried to Sinking Fund . . . | 1,441 04 |
| | $4,714 05 |

EXPENDED.

| | | |
|---|---|---|
| For Labor, as per pay-rolls . . . . | $2,219 00 | |
| Pipe, fittings, etc. . . . . | 2,123 28 | |
| Plumbing . . . . . | 96 77 | |
| Service boxes . . . . . | 270 00 | |
| Stone cutting . . . . . | 5 00 | |
| As per item No. 63 of expenses . . . . . | | $4,714 05 |

Cambridge Water Works in account with the City of Cambridge, for the year ending Nov. 30, 1887 : —

RECEIPTS AND EXPENDITURES.

| | | | |
|---|---|---|---|
| Balance in the City Treasury to the credit of Water accounts, Nov. 30, 1886: — | | | |
| Fresh Pond Land account | $13,020 20 | | |
| Stony Brook account | 18,192 46 | | |
| Total | $31,212 66 | | |
| RECEIVED. | | EXPENDED. | |
| From sale of bonds: | | For Abatements | $4,321 96 |
| Fresh Pond land series | 15,000 00 | Construction | 19,563 85 |
| Stony Brook series | 95,000 00 | Fresh Pond land | 11,526 00 |
| Premiums and accrued interest | 1,097 22 | Stony Brook supply | 111,301 86 |
| Other revenue on bond accounts | 329 22 | Interest | 97,355 00 |
| From revenue on Construction account | 7 50 | Maintenance | 37,610 62 |
| From revenue on maintenance account | 861 19 | Refunds | 1,789 82 |
| From revenue on rates, fines, etc. | 211,300 82 | Sinking Fund | 53,141 52 |
| From revenue on supply account | 6,155 09 | Supplies | 4,714 05 |
| | | * Balance carried over | 19,639 02 |
| | $360,963 70 | | $360,963 70 |

* Balance brought forward to the credit of the Cambridge Water Works, Nov. 30, 1887: —

| | |
|---|---|
| Water Works (Construction, Fresh Pond) | $16,606 70 |
| Water Works (Construction, Stony Brook) | 3,032 32 |
| Total | $19,639 02 |

## Taxes.

The amount of taxes assessed by the Board of Assessors, on the real and personal estates and polls of Cambridge, for the year 1887, was as follows:—

| | |
|---|---|
| Valuation of real estate | $46,344,700 00 |
| Valuation of personal estate | 13,358,910 00 |
| | $59,703,610 00 |
| Assessed at $16.00 per $1,000 gives | $955,257 76 |
| 17,132 polls, at $2.00 | 34,264 00 |
| 29 polls of women, at .50 each | 14 50 |
| Bank stock (non-resident separately assessed) | 6,428 64 |
| | $995,964 90 |

This tax is divided as follows:

| | |
|---|---|
| For City purposes* | $864,000 00 |
| County assessments | 32,785 33 |
| Overlay | 22,640 93 |
| State assessments | 70,110 00 |
| State charge for non-resident bank stock | 6,428 64 |
| | $995,964 90 |

* To meet the city expenses, the income from various departments is added to this sum raised by taxation.

| | |
|---|---|
| Increase in the number of polls since last year | 604¾ |
| 604¾ polls at $2.00 | $1,209 50 |
| Increase in real estate valuation | 1,389,500 00 |
| | $1,390,709 50 |
| Decrease in personal valuation | 1,131,560 00 |
| Total gain in valuation since last year | 259,149 50 |

| | |
|---|---|
| Number of houses in 1887 . . . . . | 9,761 |
| Number of houses in 1886 . . . . . | 9,398 |
| Number of houses built during the past year . | 363 |

| | |
|---|---|
| Number of horses assessed . . . . . | 4,335 |
| Number of cows assessed . . . . . | 420 |
| Number of swine assessed . . . . . | 92 |

Statement of the valuations of the personal property and real estate of the City of Cambridge, with the number of polls, dwellings, and rate of taxation for the past ten years:

| Year. | Polls. | Personal. | Real Estate. | Total. | Dwellings. | Rate per $1000. |
|---|---|---|---|---|---|---|
| 1878 | 11,556 | $12,067,440 | $37,547,700 | $49,615,140 | 8,037 | $18 00 |
| 1879 | 11,892 | 11,892,898 | 37,345,200 | 49,238,098 | 8,137 | 17 00 |
| 1880 | 12,644 | 11,699,660 | 37,929,400 | 49,629,060 | 8,165 | 16 00 |
| 1881 | 13,678 | 12,401,390 | 38,691,900 | 51,093,290 | 8,331 | 16 00 |
| 1882 | 13,922 | 11,577,080 | 39,091,200 | 50,668,280 | 8,489 | 16 60 |
| 1883 | 14,870 | 11,975,640 | 39,821,700 | 51,797,340 | 8,572 | 16 40 |
| 1884 | 15,399¼ | 12,259,491 | 41,289,200 | 53,548,691 | 8,781 | 16 80 |
| 1885 | 16,036 | 12,758,255 | 42,588,300 | 55,346,555 | 9,106 | 15 50 |
| 1886 | 16,534½ | 14,490,470 | 44,955,200 | 59,445,670 | 9,398 | 15 00 |
| 1887 | 17,139¼ | 13,358,910 | 46,344,700 | 59,703,610 | 9,761 | 16 00 |

Abatement and discounts upon taxes for the past ten years:

| Year. | Total Tax. | Total Abatement. | Total Discounts, at 4 per cent., except 1887 at 3 per cent. | Amount of tax uncollected Dec. 1, each year. |
|---|---|---|---|---|
| 1878 | $935,227 04 | $26,799 82 | $30,061 05 | $127,739 86 |
| 1879 | 869,395 00 | 30,577 37 | 29,305 80 | 95,352 28 |
| 1880 | 826,079 23 | 17,142 79 | 28,383 13 | 72,534 65 |
| 1881 | 850,730 61 | 12,958 90 | 30,029 45 | 68,562 84 |
| 1882 | 873,793 41 | 12,230 20 | 30,783 78 | 64,448 68 |
| 1883 | 885,938 96 | 14,784 62 | 31,188 00 | 67,482 66 |
| 1884 | 937,938 64 | 11,210 31 | 32,926 83 | 79,726 52 |
| 1885 | 895,012 06 | 14,174 11 | 31,781 78 | 64,335 30 |
| 1886 | 930,228 50 | 17,497 00 | 32,532 57 | 74,497 50 |
| 1887 | 995,964 90 | 15,443 74 | 26,064 53 | 84,441 30 |

Temporary loans for the past ten years, and interest paid upon the same:—

| Year. | Temporary Loan. | Interest paid upon the Loan. |
|---|---|---|
| 1878 | $445,000 | $10,652 84 |
| 1879 | 352,000 | 7,230 20 |
| 1880 | 350,000 | 6,660 94 |
| 1881 | 575,000 | 9,933 48 |
| 1882 | 525,000 | 9,720 05 |
| 1883 | 600,000 | 14,880 25 |
| 1884 | 540,000 | 15,795 37 |
| 1885 | 300,000 | 13,790 52 |
| 1886 | 450,000 | 5,653 83 |
| 1887 | 555,000 | 9,222 24 |

# ANNUAL REPORT

OF

# THE COMMITTEE ON FINANCE.

---

The Committee on Finance herewith submits its annual report, it being for the financial year, ending November 30, 1887.

The total cash transactions of the city for the year 1887, as shown by the November statement of the Auditor of Accounts, amounted to the sum of $2,475,938.85.

Nearly all the expenditure under the various headings, was anticipated and provided for in the annual budget reported by the Committee at the beginning of the year, a few items having been added from time to time by subsequent orders of the City Council.

The annual estimates of ways and means as made by this committee in the month of February last, which were adopted without change of figures, were as follows:—

**Appropriations, 1887.**

| | |
|---|---|
| Estimated expenses on appropriation accounts . . | $1,273,635 00 |
| Allowance for estimated uncollected taxes of the year 1887, remaining uncollected as of Nov. 30, 1887 | 70,000 00 |
| Note payable, note due Cambridge Savings Bank, payable in 1887 . . . . . | 6,500 00 |
| Total appropriations and liabilities . . . . | $1,350,135 00 |

**Contra.**

| | | |
|---|---|---|
| Cash in treasury Dec. 1, 1886 . . . . . | $49,099 83 | |
| Estimated revenue on appropriation accounts . . . . . | 284,665 00 | |
| Amount of corporation tax from Commonwealth for 1887, (estimated) . . . | 45,000 00 | |
| Amount of National Bank tax from Commonwealth for 1887, (estimated) $16,000 less $6,000 . . . . . | 10,000 00 | |
| Amounts carried forward . . . . . | $388,764 83 | $1,350,135 00 |

| | | |
|---|---|---|
| Amounts brought forward . . . . . | $388,764 83 | $1,350,135 00 |
| Uncollected taxes 1887 and previous years (estimated) . . . . . | 60,000 00 | |
| Proceeds from sale of City Lands, (estimated) . . . . . | 11,000 00 | |
| Proceeds from sale of mortgage notes (estimated) . . . . . | 7,000 00 | |
| | | $466,764 83 |
| Balance to be provided for . . . . . | | $883,370 17 |

This sum was subject to such additions by the assessors, as by law they are authorized and directed to make.

It appears by the foregoing statement that the sum deemed necessary to meet the requirements of the city for the financial year ending Nov. 30, 1887, was $883,370.17. Provision for raising this sum was made as follows, viz:—

| | |
|---|---|
| 1. By the issue of water loan bonds bearing interest not exceeding four per cent and running twenty years, to an amount equal to the appropriation, before recited, for water works (construction) . . . . . | $20,000 00 |
| 2. By assessment upon the polls and estates of the inhabitants of Cambridge, etc., for the current year, being the amount required for municipal expenses for the year. (The state tax and county were added hereto by the assessors, by authority of law) . . . . . | $864,000 00 |
| Total . . . . . | $884,000 00 |
| To the sum ordered to be raised by taxation as hereinbefore stated . . . . . | $864,000 00 |

There were added by the assessors:—

| | | |
|---|---|---|
| Amount of overlay . . . . . | $21,759 63 | |
| State tax for 1887 . . . . . | 70,110 00 | |
| County tax for 1887 . . . . . | 32,785 33 | |
| Non-resident Bank Tax . . . . . | 6,428 64 | |
| Additional Warrants . . . . . | 881 30 | |
| Total additions . . . . . | | $131,964 90 |
| Total amount of assessors' warrants . . . . | | $995,964 90 |
| Amount carried forward . . . . . | | $995,964 90 |

| | | |
|---|---|---|
| Amount brought forward | | $995,964 90 |
| Of this sum there was collected and paid into the city treasury the sum of | | $911,523 60 |
| Leaving unpaid | | $84,441 30 |
| Estimated deficiency provided for in the financial estimate of the year | | $70,000 00 |
| Amount of deficiency in excess of estimate above stated | | $14,441 30 |
| The amount received from uncollected taxes for the year of 1886, and previous years was | $64,646 40 | |
| Amount estimated | 60,000 00 | |
| Amount received, in excess of estimate, from this source | | $4,646 40 |
| Net deficiency in excess of estimate of receipt from taxes | | $9,794 90 |

In other accounts there was an excess of revenue over the estimates, as shown below: —

| | Estimated Revenue. | Actual Revenue. | Excess. |
|---|---|---|---|
| On Appropriation Accounts, not including Water Works | $91,700 00 | $110,397 95 | $18,697 95 |
| City Lands | 11,000 00 | 14,827 66 | 3,827 66 |
| Mortgage Notes | 7,000 00 | 7,651 39 | 651 39 |
| Tax Lien Account | | 609 28 | 609 28 |
| Corporation Tax | 45,000 00 | 55,163 51 | 10,163 51 |
| National Bank Tax (net) | 10,000 00 | 10,940 16 | 940 16 |
| | $164,700 00 | $199,589 95 | $34,889 95 |

| | | |
|---|---|---|
| The excess of receipts above the estimates upon the foregoing accounts was | | $34,889 95 |
| Less deficiency in estimate of collections from taxes | | 9,794 90 |
| Net surplus revenue | | $25,095 05 |

Following is a statement showing the total amount of appropriations made from time to time during the year, and the expenditures thereunder.

## City Department Accounts.

| | | |
|---|---|---|
| The gross amount appropriated at the beginning of the year, in accordance with the estimates of this committee, was | | $1,060,670 00 |
| ADDITIONAL APPROPRIATIONS. | | |
| Sewers, (construction, "Belmont" Mount Auburn street):— | | |
| Unexpended balance brought over from 1886 | $16,891 56 | |
| Amount transferred | 238 64 | |
| Additional appropriation, March 17 | 8,000 00 | |
| | | $25,130 20 |
| Sewers, (construction, Bath street and other streets) April 1:— | | |
| Trunk Sewer appropriation met by loan | $22,000 00 | |
| Premium on loan and revenue | 279 00 | |
| | | $22,279 00 |
| Harvard Bridge appropriation, June 23, (to be met by loan authorized by Acts of 1882, Chapter 155.) | $100,000 00 | |
| Premium on $10,000, portion of loan negotiated | 75 00 | |
| | | $100,075 00 |
| Additions of surplus revenue to various city appropriations from time to time | $19,644 21 | |
| Less transferred to Belmont sewer account | 238 64 | |
| Net additions from surplus revenue | | $19,405 57 |
| Total city appropriations for the year 1887 | | $1,227,559 77 |
| The total expenditure under appropriation heads in the various city departments, in 1887, was | | $1,067,289 70 |
| Balances of appropriations unexpended | | $160,270 07 |
| The foregoing statement shows that the total expenditure under appropriation heads in the several city departments in 1887 was | | $1,067,289 70 |
| Less the following amounts not included in the tax levy: | | |
| Harvard Bridge | $2,970 18 | |
| Bath street sewer | 8,344 70 | |
| Amounts carried forward | $11,314 88 | $1,067,289 70 |

| | | |
|---|---|---|
| Amounts brought forward . . . . . | $11,314 88 | $1,067,289 70 |
| "Belmont" sewer . . . . . | 25,130 20 | |
| | | $36,445 08 |
| Balance paid from ordinary revenue and taxes . . | | $1,030,844 6 |
| The total expenditure under appropriation heads in 1886, was . . . . . | | $1,033,697 13 |
| Decrease in 1887 . . . . . | | $2,852 51 |

The following tables exhibit a comparison of the amounts expended upon the several appropriation accounts included in the balances above given, in the years 1886 and 1887 respectively, including only such items as were provided for in the annual tax levies.

| CITY ACCOUNTS. | Expended, 1886. | Expended, 1887. | Increase. | Decrease. |
|---|---|---|---|---|
| Abatements (Taxes)..... | $17,497 00 | $15,443 74 | | $2,053 26 |
| Discounts (Taxes)..... | 32,532 57 | 26,054 53 | | 6,478 04 |
| Bridges..... | 2,468 75 | 3,496 76 | $1,028 01 | |
| Bridges, West Boston, Cragie's and Prison Point.... | 10,443 65 | 7,307 47 | | 3,136 18 |
| Cambridge Cemetery..... | 14,780 16 | 14,745 98 | | 34 18 |
| Cambridge Public Library. | 6,893 47 | 8,532 65 | 1,639 18 | |
| City Buildings (Care and Repairs)..... | 11,217 88 | 10,496 49 | | 721 39 |
| Engineering..... | 5,550 74 | 7,191 17 | 1,640 43 | |
| Fire Departm't (Ordinary) | 58,375 98 | 51,084 57 | | 7,291 41 |
| Fire Department (New Engine House)..... | | 10,045 52 | 10,045 52 | |
| Health Department..... | 2,788 70 | 3,119 07 | 330 37 | |
| Incidental Expenses..... | 44,204 83 | 29,638 75 | | 14,566 08 |
| Interest..... | 116,093 33 | 112,967 74 | | 3,125 59 |
| Lighting Streets..... | 31,578 71 | 37,833 54 | 6,254 83 | |
| Pauper Department..... | 23,856 54 | 24,225 17 | 368 63 | |
| Pauper Dep't (Almshouse). | 23,718 48 | 23,443 11 | | 275 37 |
| Pauper Dep't (House Offal) | 14,931 84 | 15,422 29 | 490 45 | |
| Police Department..... | 80,404 44 | 80,223 88 | | 180 56 |
| Salaries..... | 26,419 79 | 26,458 33 | 38 54 | |
| School Department (Drawing Schools)..... | 971 10 | 1,074 64 | 103 54 | |
| School Department (Evening Schools)..... | 1,325 90 | 1,068 84 | | 257 06 |
| School Department (Incidental Expenses)..... | 645 94 | 996 86 | 350 92 | |
| School Department (Salaries)..... | 165,277 42 | 172,135 06 | 6,857 64 | |
| School Department (Text-Books and Stationery.... | 10,680 52 | 10,992 00 | 311 48 | |
| School Houses (Care and Repairs)..... .. | 30,932 58 | 38,905 58 | 7,973 00 | |
| School Houses (New and Furniture, New High School).... ..... | 9,678 18 | 9,304 74 | | 373 44 |
| Amounts carried forward.. | $743,268 50 | $742,208 48 | $37,432 54 | $38,492 56 |

| CITY ACCOUNTS. | Expended, 1886. | Expended, 1887. | Increase. | Decrease. |
|---|---|---|---|---|
| Amounts brought forward. | $743,268 50 | $742,208 48 | $37,432 54 | $38,492 56 |
| School Houses (New and Furniture, Webster School) | 9,113 93 | 1,430 64 | | 7,683 29 |
| School Houses (New and Furniture, Additional) | 3,876 65 | | | 3,876 65 |
| School Houses (New and Furniture in Ward 2) | 12,963 92 | | | 12,963 92 |
| Sewers (Construction) | 21,334 14 | 28,815 89 | 7,481 75 | |
| Sewers (Maintenance) | 22,972 00 | 14,587 64 | | 8,384 36 |
| Shade Trees and Public Grounds | 4,450 05 | 4,424 68 | | 25 37 |
| Sinking Funds | 63,055 00 | 59,695 00 | | 3,360 00 |
| State Aid | 13,137 00 | 12,869 00 | | 268 00 |
| Stationery and Printing | 3,194 85 | 2,995 19 | | 199 66 |
| Street Dep't (Paving):— | | | | |
| Main St. from Pelham to west of R. R. crossing | 15,870 92 | 16,000 98 | 130 06 | |
| Harvard St., north side, from Bow to Dunster Streets | 4,000 00 | 3,000 00 | | 1,000 00 |
| Ordinary Paving and Repairs | 8,650 02 | 15,011 51 | 6,361 49 | |
| Street Dep't (Repairs) | 84,266 42 | 89,925 48 | 5,659 06 | |
| Street Dep't (New Stable) | | | | |
| Street Dep't (Watering) | 21,577 48 | 20,326 05 | | 1,251 43 |
| Street Dep't (Widening and Extension) | 1,966 25 | | | 1,966 25 |
| Street Dep't (Land for City Yard) | | 9,999 78 | 9,999 78 | |
| Street Dep't (Steam Roller) | | 5,000 00 | 5,000 00 | |
| Street Dep't (Mt. Auburn Street Bulkhead) | | 2,974 30 | 2,974 30 | |
| Street Dep't (Grading Dana Square) | | 500 00 | 500 00 | |
| Street Dep't (North River Flagging) | | 1,080 00 | 1,080 00 | |
| Totals | $1,033,697 13 | $1,030,844 62 | $76,618 98 | $79,471 49 |

| | |
|---|---|
| Decrease of expenditure in sundry appropriations | $79,471 49 |
| Increase of expenditure in sundry appropriations | 76,618 98 |
| Net decrease in 1887 | $2,852 51 |

One cause of this decrease of expenditure may be found in the fact that no charge was made by the Water Board for water furnished the various departments during the year, except for watering the streets, this action of the Board being by request of the City Council.

Of the special appropriations for city departments made in the year 1887, the following unexpended balances, will be carried forward into the next year, and added to the estimates, viz: —

| | | |
|---|---|---|
| Harvard Bridge, (to be met by loan) . . | $100,075 00 | |
| Expended . . . . . | 2,970 18 | |
| Balance . . . . . | | $97,104 82 |
| Sewers, construction, Bath street sewer and others . . . . . | $22,279 00 | |
| Expended . . . . . | 8,344 70 | |
| Balance . . . . . | | $13,934 30 |
| Total . . . . . | | $111,039 12 |
| The total amount of unexpended balances was . . | | $160,270 07 |
| Amount carried forward to 1888 . . . . . | | 111,039 12 |
| Balances of appropriations included in tax levy | | $59,230 95 |

## Water Department.

| | | |
|---|---|---|
| Amount appropriated at the beginning of the year in accordance with estimates . . . . . | | $212,965 00 |

ADDITIONAL APPROPRIATIONS.

| | | |
|---|---|---|
| Water Works (construction Fresh Pond Land account), balance of appropriation in 1886, brought over to 1887 . . . . | $28,020 20 | |
| Premium on loan, $15,000, ¾ per cent | 112 50 | |
| | | $28,132 70 |
| Water Works (construction, Stony Brook additional water supply) Appropriation in 1886 brought over to 1887 . . . . . | $93,192 46 | |
| Premium on loan, $75,000, ¾ per cent . . | 562 50 | |
| Other revenue . . . . . | 319 22 | |
| | | $94,074 18 |
| Water Works (construction, additional appropriation) . . . . . | $68,100 00 | |
| Premium on loan, $20,000, 1¼ per cent . . | 250 00 | |
| Other revenue . . . . . | 10 00 | |
| | | 68,360 00 |
| Additions to sundry Water Works accounts, surplus revenue . . . . . | | 8,572 50 |
| Total Water Department appropriations in 1887 . . | | $412,104 40 |
| The total expenditure upon Water Department account in 1887, was . . . . . | | 341,324 68 |
| Balances unexpended . . . . . | | $70,779 72 |

The following unexpended balances upon Water Department, appropriation accounts, are to be carried forward to the appropriations for the next year :

| | | |
|---|---|---|
| Water Works (construction, Fresh Pond Land account), unexpended balance of appropriation of 1886, $28,020.70 and revenue . . . . . | | $16,606 70 |
| Water Works (construction additional), unexpended balance of appropriation, $68,100, and revenue . . | | 51,132 32 |
| Total . . . . . | | $67,739 02 |
| The total amount of the balances unexpended upon the various Water Department accounts, as exhibited upon the final monthly sheet of the Auditor of Accounts, to December 1, 1887, was . . . . | | $70,779 72 |
| Less amounts to be carried forward to the appropriations of the next year . . . . . | | 67,739 02 |
| Balances unexpended in other Water Department accounts:— | | |
| Abatements . . . . . | $178 04 | |
| Construction . . . . . | 443 65 | |
| Interest on Water Loan . . . . . | 17 22 | |
| Maintenance . . . . . | 750 57 | |
| Rates, fines, etc. . . . . | 210 18 | |
| Supplies . . . . . | 1,441 04 | |
| Showing balances unexpended in ordinary Water Department accounts . . | | $3,040 70 |

Of the surplus receipts on Water Department revenue accounts, the sum of $1,676.52 was added to the Sinking Fund of Water Works, according to law.

Provision was made from time to time during the year, for the creation of permanent loans, as follows:

**City Loans.**

| | |
|---|---|
| March 17. Sewers, (construction), additional loan on account of Mount Auburn street sewer, begun in 1886 . . . . . | $8,000 00 |
| April 1. Sewers, (construction), loan on account of Trunk sewer in Bath street and other streets . . | 22,000 00 |
| June 23. Harvard Bridge. Loan authorized under provisions of Chapter 155 of the Acts of 1882 . . | 100,000 00 |
| City loans authorized in 1887 . . . . . | $130,000 00 |

**Water Loans.**

| | | |
|---|---|---|
| February 16. Water Works, (construction), loan annually authorized for the ordinary construction account . . . . | $20,000 00 | |
| (This was not issued.) | | |
| July 15. Water Works, (construction, additional) . . . . . | 68,100 00 | |
| Water Loans authorized in 1887 . . . . . | | $88,100 00 |

| | | |
|---|---|---|
| Total amount of City and Water Loans authorized in 1887 . . . . . | | $218,100 00 |
| Loans authorized in previous years and not heretofore issued:— | | |
| December 31, 1885. Water Works, (construction, Stony Brook), balance unissued of loan of $200,000, authorized under Chapter 256, of the Acts of 1884 . . | $75,000 00 | |
| May 16, 1886. Water Works, (construction, Fresh Pond), Land loan . . . . | 15,000 00 | |
| | | 90,000 00 |
| Total amount of authorized loans, negotiated in part in 1887 . . . . . | | $308,100 00 |

Bonds were issued for such portions of the foregoing amounts as were required for the year 1887, leaving balances yet to be issued as follows: —

**City Loan.**

| | | |
|---|---|---|
| Harvard Bridge, amount authorized . . | $100,000 00 | |
| Amount issued . . . . . | 10,000 00 | |
| Unissued . . . . . | | $90,000 00 |
| Sewers (construction,) amount authorized | $30,000 00 | |
| Amount issued . . . . . | 30,000 00 | |

**Water Loan.**

| | | |
|---|---|---|
| Water Works (construction), unissued . | | 20,000 00 |
| Water Works, (construction, additional) | $68,100 00 | |
| Amount issued . . . . . | 20,000 00 | |
| Amount unissued . . . . . | | 48,100 00 |
| Water Works (Stony Brook, construction) | $75,000 00 | |
| Amount issued . . . . . | 75,000 00 | |
| Water Works (construction, Fresh Pond) | $15,000 00 | |
| Amount issued . . . . . | 15,000 00 | |
| Loans authorized and unissued . . | | $158,100 00 |

Following is a schedule of the loans authorized, and negotiated, showing the amounts received:

**Loans Negotiated.**

Of the total amount of loans thus authorized, a portion was negotiated as follows:

| | | |
|---|---|---|
| Water Works (Stony Brook, construction) | | |
| One registered bond, dated Oct. 1, 1887, payable in twenty years, with interest, semi-annually, at 4 per cent . . | $75,000 00 | |
| Water Works (construction, Fresh Pond) | | |
| One registered bond, dated Oct. 1, 1887, payable in twenty years, with interest semi-annually at 4 per cent . . . . | 15,000 00 | |
| | $90,000 00 | |
| Premium, ¾ per cent . . . . . | 675 00 | |
| Amount received | | $90,675 00 |
| Harvard Bridge Loan: | | |
| One registered bond, dated Oct. 1, 1887, payable in thirty years, with interest semi-annually at 4 per cent . . . . | $10,000 00 | |
| Premium ¾ per cent . . . . . | 75 00 | |
| Amount received | | $10,075 00 |
| Sewers (construction), Mount Auburn street sewer . . . . . | $8,000 00 | |
| Bath street and other sewers . . . . . | 22,000 00 | |
| Total . . . . . | $30,000 00 | |
| One registered bond, dated Nov. 1, 1887, payable in twenty years, with interest semi-annually at 4 per cent . . . . . | $30,000 00 | |
| Premium 1¼ per cent . . . . . | 375 00 | |
| | | $30,375 00 |
| Water Works (construction), part of authorized loan of $68,100 | | |
| One registered bond, dated Nov. 1, 1887, payable in twenty years, with interest semi-annually at 4 per cent . . . . | $20,000 00 | |
| Premium, 1¼ per cent . . . . . | 250 00 | |
| | | $20,250 00 |
| Total sum received . . . . . | | $151,375 00 |
| Less amount of premium . . . . . | | 1,325 00 |
| Total amount of bonds issued . . . . . | | $150,000 00 |

The premium received upon the bonds thus issued was added to the several appropriations on account of which the bonds were respectively issued.

It appears by the foregoing that the actual additions to the city debt during the year have been as follows:

### City Debt.

| | | |
|---|---|---|
| Harvard Bridge, loan | $10,000 00 | |
| Sewer Loan | 30,000 00 | |
| Total addition to gross City Debt in 1887 | | $40,000 00 |

### Water Debt.

| | | |
|---|---|---|
| Stony Brook (construction) | $75,000 00 | |
| Construction Fresh Pond | 15,000 00 | |
| Construction (additional) | 20,000 00 | |
| Total additions to gross Water Debt in 1887 | | 110,000 00 |
| | | $150,000 00 |

The annual settlement with the Commonwealth was made as of November 30, 1887, and the transaction included in the accounts of the year, as follows:

RECEIVED FROM COMMONWEALTH.

| | | |
|---|---|---|
| Corporation tax, 1887 | $52,951 51 | |
| National Bank tax, 1887 | 17,611 22 | |
| State aid, Acts 1879, Chap. 301 | 9,199 00 | |
| Support of State paupers | 315 59 | |
| Support of State paupers, temporary | 111 35 | |
| Burial of State paupers | 18 00 | |
| State aid, Acts 1879, Chap. 252 | 1,743 00 | |
| | | $81,949 67 |

PAID THE COMMONWEALTH.

| | | |
|---|---|---|
| State tax, 1887 | $70,110 00 | |
| National Bank tax, 1887 | 6,223 81 | |
| | | 76,333 81 |
| Balance received by the city | | $5,615 86 |
| The amount borrowed on temporary loans in 1887 and paid from the taxes of the year was | | $555,000 00 |
| Borrowed in 1886, and paid from taxes of same year | | 450,000 00 |
| Increase in 1887 | | 105,000 00 |
| The amount paid for interest on temporary loans was in 1887 | | $9,222 24 |
| Less interest received | | 988 13 |
| | | $8,234 11 |
| Interest so paid in 1886 | | 4,832 83 |
| Increase in 1887 | | $3,401 28 |

A sub-committee of this committee met at the treasurer's office at the close of business Nov. 30, and counted the cash on hand.

| | | |
|---|---|---|
| The total amount was found to be . . . . . | | $168,787 29 |
| Less the following : | | |
| Unpaid bills of November, draft to be paid in December, 1887 . . . . . | | 43,718 61 |
| Balance in Treasury, per Auditor's account . . . . | | $125,068 68 |
| This balance is subject to further deductions as follows : | | |
| Unexpended balance, Harvard Bridge Loan . . . . | $7,104 82 | |
| " " Sewer . . . . | 13,934 30 | |
| " " Fresh Pond . . | 16,606 70 | |
| " " Stony Brook . | 3,032 32 | |
| | $40,678 14 | |
| Approximate balance unexpended on account of contracts begun and not completed . . . . . | 32,700 00 | |
| Total . . . . . | | 73,378 14 |
| Balance in Treasury per Auditor's account . . | | $51,690 54 |
| Included in this balance is the sum of $1,000.00, the amount of the Fay fund, which is represented by a demand note of the City of Cambridge, dated Nov. 30, 1879, payable to the Trustees of the Dana Library, as the Public Library was then called. By vote of this Committee, the sum has been taken from the City Treasury, and paid over to the Trustees of the Cambridge Public Library. Said sum being deducted from the balance previously stated, there remains a net balance in the City Treasury of | | $50,690 54 |

The last named sum represents the actual balance in the treasury at the close of business, Nov. 30, 1887, after providing for all liabilities incurred in 1887, and due and approved by the proper boards and committees before the close of the financial year, and also upon all contracts as nearly as can be ascertained.

A subsequent examination was also made by the committee, of the accounts respectively kept by the treasurer and auditor, and the same were compared and found to be accurately kept. All were ascertained to be correct.

The following tables are compiled from the assessors' books, and do not include subsequent changes :

## Polls and Valuation of Polls and Estates, May 1, 1885.

| Wards. | Polls. | Valuation of Polls. | Personal. | Real Estate. | Total, Real and Personal | Dwellings. | Total Tax. |
|---|---|---|---|---|---|---|---|
| 1 ..... | 2,715 | $5,430 00 | $5,468,950 | $11,094,600 | $16,563,550 | 1,779 | ..... .... |
| 2 ..... | 4,481¾ | 8,963 50 | 3,354,315 | 10,740,500 | 14,094,815 | 2,439½ | ..... ... |
| 3 ..... | 3,156 | 6,312 00 | 1,454,590 | 6,945,500 | 8,400,090 | 1,421 | ..... ... |
| 4 ..... | 3,975¼ | 7,950 50 | 1,553,400 | 8,353,500 | 9,906,900 | 2,385 | ..... .... |
| 5 ..... | 1,708 | 3,416 00 | 927,000 | 5,454,200 | 6,381,200 | 1,082 | ..... .... |
| Total .... | 16,036 | $32,072 00 | $12.758,255 | $42,588,300 | $55,346,555 | 9,106½ | $889,943 60 |

## Polls and Valuation of Polls and Estates, May 1, 1886.

| Wards. | Polls. | Valuation of Polls. | Personal. | Real Estate. | Total, Real and Personal | Dwellings. | Total Tax. |
|---|---|---|---|---|---|---|---|
| 1 ..... | 2,703¾ | $5,407 00 | $7,426,980 | $11,455,400 | $18,882,380 | 1,842 | $288,642 70 |
| 2 ..... | 4,672½ | 9,345 00 | 3,132,390 | 11,403,700 | 14,536,090 | 2,507 | 227,386 35 |
| 3 ..... | 3,197¼ | 6,394 50 | 1,403,200 | 7,134,700 | 8,537,900 | 1,432 | 134,463 00 |
| 4 ..... | 4,188¼ | 8,376 50 | 1,576,300 | 9.293,200 | 10,869,500 | 2,492 | 171,419 00 |
| 5 .. ..... | 1,773 | 3,546 00 | 951,600 | 5,668,200 | 6,619,800 | 1,125 | 102,843 00 |
| Total .... | 16,534½ | $33,069 00 | $14,490,470 | $44,955,200 | $59,445,670 | 9,398 | $924,754 05 |

## Polls and Valuation of Polls and Estates, May 1, 1887.

| Wards. | Polls. | Valuation of Polls. | Personal. | Real Estate. | Total, Real and Personal | Total Tax. | Houses. |
|---|---|---|---|---|---|---|---|
| 1 ..... | 2,736 | $5,472 00 | $5,954,510 | $11,800,000 | $17,754,510 | $289,544 16 | 1,933 |
| 2 ..... | 4,857½ | 9,715 00 | 3,280,290 | 11,680,900 | 14,961,190 | 249,094 04 | 2,604¾ |
| 3 ... .... | 3,281½ | 6,563 00 | 1,403,110 | 7,298,000 | 8,701,110 | 145,780 76 | 1,446 |
| 4 ..... .. | 4,330½ | 8,661 00 | 1,677,400 | 9,576,000 | 11,253,400 | 188,715 40 | 2,611 |
| 5 ..... | 1,899½ | 3,799 00 | 995,000 | 5,987,600 | 6,982,600 | 115,520 60 | 1,167 |
| Total.. | 17,105 | $34,210 00 | $13,310,310 | $46,342,500 | $59,652,810 | $988,654 96 | 9,761 |

N. B.—The amount of the non-resident Bank Tax and tax upon supplementary warrants, are not included in the amounts stated as the total tax for the several years above mentioned. The valuation of the property assessed in the supplementary warrants for these years, is not added to the total valuations as above given.

The valuations of estates in this city, for the years 1885, 1886 and 1887, as hereinbefore given, are the same as originally

made by the board of assessors, during those years, and the same figures were reported by that board to the Tax Commissioners for each of the years, respectively. These valuations were subject to changes in each year, after such report was made as shown by the following:—

| | | |
|---|---|---|
| Original valuation in 1885 . . . . . | 55,346,855 00 | |
| Additional valuation in 1885 . . . . | 26,852 00 | |
| | 55,373,707 00 | |
| Abatement upon valuation in 1885 . | 888,828 00 | |
| Net valuation in 1885, as reduced by abatements | | 54,484,879 00 |
| Original valuation in 1886 . . . . . | 59,445,670 00 | |
| Additional valuation in 1886 . . . | 47,633 00 | |
| | 59,493 303 00 | |
| Abatement upon valuation in 1886 . | 1,213,354 00 | |
| Net valuation in 1886 as reduced by abatements . . . . . | | 58,279,949 00 |
| Original valuation in 1887 . . . . . | 59,652,810 00 | |
| Additional valuation in 1887 . . . | 50,800 00 | |
| | 59,703,610 00 | |
| Abatement upon valuation in 1887 . | 950,608 00 | |
| Net valuation in 1887, as reduced by abatements . . | | 58,753,002 00 |
| Average net valuation for 1885, 1886, 1887 . . . . | | $57,172,610 00 |

This last sum represents the amount upon which the limit of the rate of taxation, and also of municipal indebtedness, is fixed under the provisions of chapter 312 of the Acts of the year 1885.

Following is a statement showing the actual gain in the year 1887, in the polls, valuations and dwellings, after making the necessary corrections in the assessors' tables hereinbefore given. There were 27 additional polls at $2.00 each and 29 additional at 50 cents each, or $7\frac{1}{4}$ at $2.00 each, making the total additions $34\frac{1}{4}$, and the whole number of polls $17{,}139\frac{1}{4}$.

| Years. | Polls. | Valuation. | Dwellings. |
|---|---|---|---|
| 1887 | 17,139¼ | $58,753,002 | 9,761 |
| 1886 | 16,534½ | 58,279,949 | 9,398 |
| Gain in 1887 | 604½ | $473,053 | 363 |

It should be specially noted in reference to the amount above stated as the gain in the valuations during the year 1887, that in making up these figures, due consideration was given to the fact that exceptionally large abatements were made by the assessors, upon their original warrant for the year 1886. The valuation herein given for that year is the amount as reduced by these abatements. An apparent discrepancy between the figures herein given of the valuation, and those of the Auditor of Accounts arises from the fact that the latter are not made up with reference to the changes made in the valuation of the year 1886.

The amount assessed upon the foregoing polls and valuations, and for the non-resident bank tax was as follows:—

| | | | |
|---|---|---|---|
| In 1887. | Polls and valuation, tax . . . | $988,654 96 | |
| | Non-resident bank tax . . . . | 6,428 64 | |
| | Additional warrants . . . . | 881 30 | |
| | Total assessed in 1887 . . | | $995,964 90 |
| In 1886. | Polls and valuation, tax . . . | $924,754 05 | |
| | Non-resident bank tax . . . . | 4,707 45 | |
| | Additional warrants . . . . | 767 00 | |
| | Total assessed in 1886 . . | | 930,228 50 |
| | Increased amount of taxes in 1887 . | | $65,706 40 |

It will thus be seen that the tax-levy for the year 1887, was increased in the sum of $65,736.40 over that of the previous year. This increase was rendered necessary by reason of the demand for additional expenditure in nearly every city department.

Inasmuch as the net increase of the valuations of polls and of real and personal estates was less than one per cent upon the valuations of the year 1886, while the tax-lexy was increased about six and one-half per cent, it became necessary to raise the tax-rate to $16.00 per $1,000. Some of the causes for the increase in the tax-levy may be stated as follows:—

| | |
|---|---|
| 1. Loss in the valuation of personal estates, shown by comparison of figures in the original warrants given to the city treasurer by the assessors in September, of the years 1886 and 1887 respectively, $1,180,160 00; this sum representing a loss in taxes upon the rate for the year 1886, of . . . . . | $17,702 40 |
| 2. Increase of the State tax in 1887 . . . . . | 23,370 00 |
| Amount carried forward . . . . . | $41,072 40 |

| | |
|---|---|
| Amount brought forward . . . . . | $41,072 40 |
| 3. Increase in the County tax in 1887 . . . . . | 4,683 62 |
| | $45,756 02 |
| 4. Loss of revenue from Liquor Licenses, net sum received in 1886 . . . . . | 35,212 50 |
| Total . . . . . | $80,968 52 |
| The actual increase of the tax-levy in 1887 was . . . | 65,736 40 |
| Apparent increase in taxes and falling off in revenue in excess of the actual increase of the tax-levy . . | $15,232 12 |

An apparent variance in the figures of the auditor of accounts, with those hereinbefore given as showing the loss in personal estates in 1887, should be accounted for in the manner previously stated herein. This difference would, however, but slightly affect the amount of increase of the tax-levy, and the loss of income above shown will more than account for the increase in the tax-rate for the year 1887.

The rate of taxation was fixed by the assessors at $16.00 per $1,000, the increase previously referred to being $1.00 per $1,000 above the tax rate of the previous year. By the provisions of the city ordinance this rate was subject to a discount of three per cent to early tax-payers, who thus fixed their own rate of taxation at $15.52 per $1,000. This discount has heretofore been four per cent, but was reduced by ordinance passed in the year 1887.

The usual rate of interest was charged upon all taxes remaining unpaid after November 1, as authorized by law.

Inasmuch as this committee was authorized to negotiate various city loans, amounting in all to the sum of $150,000.00, a brief summary of the present condition of the city debt may be of interest in connection with this report. As full details of this matter will be found in the report of the Auditor of Accounts, reference may be made thereto, for particulars of the various city loans.

| | |
|---|---|
| The Funded City Debt, Nov. 30, 1887, was . . . . | $1,616,000 00 |
| Amount of Contingent Loan, due the Sinking Fund of Water Works, was . . . . . | 200,000 00 |
| Amount of Trust Funds held by the City Treasurer, was . . . . . | 26,000 00 |
| Total City Debt . . . . . | $1,842,000 00 |
| Amount carried forward . . . . . | $1,842,000 00 |

| | |
|---|---|
| Amount brought forward | $1,842,000 00 |
| Less amount of Sinking Fund | 428,564 59 |
| Net City Debt | $1,413,435 41 |
| There was a net decrease of the City Debt in the year 1887, of | $47,882 47 |

| | |
|---|---|
| The Water Debt, Nov. 30, 1887, was | $1,825,500 00 |
| Less amount of Sinking Fund, Water Works | 838,597 01 |
| | $986,902 99 |
| There was a net increase of the Water Debt in the year 1887, of | $13,408 96 |

This latter debt, as has been frequently stated in previous reports of the Committee on Finance, is entirely cared for out of the water-rates, and is not considered in the annual tax levy.

The following general appraisal of city property was made by the board of assessors, and returned by that board to the Tax Commissioner of this Commonwealth, for the year 1887, except that items relating to the Water Works property and the Sinking Funds are omitted.

GENERAL APPRAISAL OF CITY PROPERTY.

| | | |
|---|---|---|
| Cemeteries | | $65,000 00 |
| Fire apparatus | | 76,040 24 |
| Public Library | | 2,500 00 |
| School houses and lands | | 716,000 00 |
| Other public buildings | | 294,000 00 |
| Real estate | | 118,735 40 |
| Total | | $1,272,275 64 |
| The net city debt as previously shown is | $1,413,435 41 | |
| Less contingent loan held by Commissioners of Sinking Fund of Water Works, and Trust Funds | 226,000 00 | |
| | | 1,187,435 41 |
| Excess of assets over city debt as estimated | | $94,840 23 |

The value represented in the public streets in this city, about ninety miles of which were built out of the receipts from taxes of former years, and the vast net-work of sewers, extending through upwards of seventy-five miles of these streets, each costing many hundreds of thousands of dollars, are not considered in the above estimate, but if their cost were added it would only

give force to the fact that the debt of our city represents actual and tangible property of positive value.

This committee would repeat the statement in the last year's report, that "The presentation of an appraisal of some of the city property as assets, apparently balancing the city liabilities, is not to be regarded wholly in that light, but should be considered also as an indication of the various municipal necessities and improvements for which the existing debt has, from time to time provided, and which it largely represents."

The amount required for the Sinking Fund

| | |
|---|---|
| In 1887, was . . . . . | $59,695 00 |
| In 1888 it will be . . . . . | 51,145 00 |
| Reduction in 1888 . . . . . | $8,550 00 |
| The reduction in the interest account was . . . . | $3,125 59 |

It is expected that the interest account will show a proportionate reduction during the coming year.

In making up its estimates at the beginning of the year, this committee was met at the outset, by demands from nearly all the city departments, for increased expenditure. Among these requests were notably the following:

1. Fire Department: New engine and hook-and-ladder house, to replace the wooden structure on Cambridge street, standing on land which was sold for business purposes.
2. Health Department: Extra appropriation required in prosecuting investigations as to the cause of the nuisance at the outlet of the Bridge street sewer, and in devising means to remove such cause.
3. Lamp Department: Increased cost of street lighting, caused by the introduction of the system of electric lighting.
4. Police Department: Prospective increase of the force and introduction of the police signal system. (The latter was not carried through, and a part of the appropriation was subsequently transferred.)
5. School Department, (salaries): Increase of the number of teachers.
6. School Houses, (new and furniture): Renewed demand for additional school accommodations to meet the large increase of the number of pupils.
7. Street Department: Land for city yard; additional street paving; bulkhead at Mount Auburn street, and a steam road-roller.

Besides these increased demands upon the city treasury, various other propositions involving considerable expenditure have been, from time to time, referred to this committee, and duly

considered, and on its recommendations the city council has authorized the following:

1. The construction of a large trunk sewer for the relief of the district draining through the Bath street outlet. (This expense was met by a city loan.)

2. The purchase of a lot of land for a school house, at corner of Linnæan and Avon streets. This lot contains an area of 21,813 square feet, and cost the sum of $6,700. The payment for the land is already provided for, out of funds specially reserved for the purpose.

3. The cost of extra police service, occasioned by the horse railroad strike, in the month of February, 1887. The amount of this outlay was $4,030.89, and it was charged to the appropriation for Incidental Expenses.

4. The construction of a school house and work shop on the almshouse grounds to replace a burned building.

Other important matters have been considered by this committee, among which the following may be mentioned:

1. The purchase of land and the erection of a new English High School building thereon. Several conferences have been held with the school committee upon this subject. No report was made thereon, but in view of the apparent necessity for such a building in the near future, it was deemed inexpedient to carry out the design previously adopted, of enlarging the present Latin School building on Lee street, other plans having been suggested, looking to enlarged accommodations and better facilities for the Latin School as well as the English High School. Inasmuch as, since the conferences before mentioned were held, the city has received and accepted the liberal proposition from a former resident of Cambridge, to give a large and eligible lot of land upon which the city may erect a High School building, this entire subject will be considered by the next city council under circumstances entirely changed from those under which it was originally introduced.

2. The proposed extension of Winsor street from Main street to State street. This improvement is deemed important in connection with the construction of the approaches to the new Harvard bridge.

3. The proposed extension of DeWolfe street across Mount Auburn street to Bow street. This extension when completed will give a continuous roadway from Quincy square to Dyke street, bordering on the Charles river.

Both of the latter improvements were deemed important and necessary, and this committee reported recommending that the work thereon be done under laws in relation to betterments. These matters were still pending in the city council at the close of the financial year.

| | | |
|---|---|---|
| The amount of the fund "for the perpetual care of lots in the Cambridge Cemetery," at the close of the year 1886, was | | $8,975 00 |
| Amount paid into the City Treasury for this purpose in the year 1887 | | 1,550 00 |
| Amount of interest accumulations on portion of the fund on deposit in two savings banks | | 285 38 |
| Total amount of fund Nov. 30, 1887 | | $10,810 38 |

This fund, which is held in trust by the Committee on Finance, is invested as follows: —

| | | |
|---|---|---|
| One City of Cambridge Water Bond, dated Nov. 1, 1886, payable in twenty years, with interest semi-annually at 3½ per cent | | $7,000 00 |
| Amount on deposit in Cambridge Savings Bank | | 800 00 |
| " " Cambridgeport " " | | 978 71 |
| Amount reserved by the City Treasurer, for investment in a City of Cambridge Water Bond, to be dated Nov. 1, 1887, payable in twenty years, with interest semi-annually at 4 per cent | $2,000 00 | |
| Premium 1¼ per cent. $25.00. Interest $6.67 | 31 67 | |
| | | 2,031 67 |
| Total | | $10,810 38 |
| Less amount to be paid for premium and interest on investment of $2,000.00 | | 31 67 |
| Net amount of fund Nov. 30, 1887 | | $10,778 71 |

This committee has had under consideration the subject of the investment of the various other trust funds, heretofore held in the city treasury, amounting in all to $26,000. A list of these funds is given in the report of the Auditor of Accounts. A sub-committee of this committee was recently appointed to consider and report at an early day, upon the expediency of taking these funds from the treasury and investing the amount in City of Cambridge bonds.

As has been stated elsewhere in this report, the sum of $1,000, being the amount of the Fay fund, has already been taken from the city treasury for investment, thus leaving the sum of $25,000 of these trust funds for future investment.

No report upon this subject has been arrived at, and the future disposition of these funds will, therefore, be provided for by the Committee on Finance of the next year.

It has been the intent of this committee, in the preparation of this report, to summarize as briefly as possible, the financial doings of our city in the year 1887. The outlays of the public money in the various departments have continued to increase, keeping pace with our municipal growth. All the extraordinary appropriations called for during the year, to meet exigencies as they arose, have been granted by the City Council, under recommendations of this committee; and notwithstanding the largely increased expenditure above that of the preceding year, the finances of the city have continued in a prosperous condition. It is a gratifying fact that, at the close of the financial year ending Nov. 30, 1887, there was a large balance in the treasury with which to begin the business of the new year.

WILLIAM E. RUSSELL,
EDWARD R. COGSWELL,
JOSEPH A. BALL,
JOHN W. COVENEY,
JOHN H. CORCORAN,
ALVIN F. SORTWELL,
WARREN IVERS,
PATRICK H. DeCOURCY,
OLIVER H. DURRELL,
CHESTER F. SANGER,

*Committee on Finance.*

# REPORT

OF

# THE CITY TREASURER.

---

OFFICE OF CITY TREASURER, Dec. 1, 1887.

*To the Honorable the City Council:*

I herewith respectfully present the annual report of the City Treasurer for the year ending November 30, 1887.

| | |
|---|---|
| The detailed report hereto appended shows that the cash balance in the treasury, November 30, 1886, was . . . . | $183,619 54 |
| The amount received during the year ending November 30, 1887, from all sources, was . . . . . | 2,378,734 80 |
| | $2,562,354 34 |
| The authorized payments during the year amounted to . . | 2,393,567 05 |
| Leaving a balance in the treasury, November 30, 1887, of . | $168,787 29 |

Very respectfully,

WM. W. DALLINGER, *City Treasurer.*

CITY OF CAMBRIDGE IN ACCOUNT CURRENT FROM DEC. 1, 1886, TO

**Dr.**

To authorized payments charged to City Accounts as follows:—

| | |
|---|---|
| Abatements (Taxes) | $15,675 68 |
| Bridge, (Harvard) | 2,430 33 |
| Bridges | 3,438 12 |
| Bridges, (West Boston, Craigie's, and Prison Point) | 7,729 09 |
| Cambridge Cemetery | 14,996 87 |
| Cambridge Public Library | 8,671 05 |
| Cemetery Fund | 1,550 00 |
| City Buildings (Care and Repairs) | 11,061 86 |
| Discounts (Taxes) | 26,054 53 |
| Engineering | 7,012 85 |
| Fire Department | 53,185 19 |
| Fire Department (New Building) | 9,544 65 |
| Health Department | 2,988 74 |
| Incidental Expenses | 36,440 57 |
| Interest | 112,967 74 |
| Interest on Water Loan | 97,355 00 |
| Lighting Streets | 37,637 57 |
| Loan, Low Land | 120,000 00 |
| Loan, Temporary | 555,000 00 |
| Loan, Water | 150,000 00 |
| Loan, High School | 6,500 00 |
| Pauper Department | 23,915 23 |
| Pauper Department (Almshouse) | 23,109 58 |
| Pauper Department (House Offal) | 15,805 20 |
| Police Department | 82,161 00 |
| Salaries | 26,491 60 |
| School Department (Drawing Schools) | 1,074 64 |
| School Department (Evening Schools) | 1,089 09 |
| School Department (Incidental Expenses) | 1,001 86 |
| School Department (Salaries) | 172,135 06 |
| School Department (Text Books and Stationery) | 12,132 52 |
| School Houses (Care and Repairs) | 39,400 66 |
| School Houses (New, and Furniture) | 8,806 49 |
| School Houses (New, and Furniture, Additional) | 184 58 |
| School Houses (New, and Furniture, Webster) | 1,430 64 |
| School Houses (New, and Furniture, Ward Two) | 686 18 |
| Sewers, (Construction) | 29,981 96 |
| Sewers (Construction, Belmont) | 31,233 99 |
| Sewers (Construction, Bath Street) | 8,008 67 |
| Sewers (Maintenance) | 14,550 31 |
| Shade Trees and Public Grounds | 4,502 29 |
| Shade Trees and Public Grounds (Dana Square) | 500 00 |
| Sinking Funds | 59,695 00 |
| Sinking Funds of Water Works | 51,465 00 |
| State Aid | 12,829 00 |
| Stationery and Printing | 2,850 13 |
| Street Department (Paving) | 17,985 98 |
| Street Department (Paving, Main Street) | 16,000 98 |
| Street Department (Paving, Harvard Street) | 3,000 00 |
| Street Department (Paving, North River Flagging Stone) | 1,080 00 |
| Street Department (Repairs) | 87,831 02 |
| Street Department (Repairs, Bulkhead, Mount Auburn Street) | 2,974 30 |
| Street Department (Repairs, Steam Roller) | 5,000 00 |
| Street Department, (Repairs, Land for City Yard) | 9,999 78 |
| Street Department (Watering) | 19,453 36 |
| Tax (County) | 60,887 04 |
| Tax (Lien Account) | 86 65 |
| Tax (National Bank) | 6,223 81 |
| Tax (State) | 70,110 00 |
| Water Works (Abatements) | 4,321 96 |
| Water Works (Construction) | 19,887 60 |
| Water Works (Construction, Fresh Pond) | 11,876 00 |
| Water Works (Construction, Stony Brook) | 104,604 38 |
| Water Works (Maintenance) | 38,180 54 |
| Water Works (Rates, Fines, etc.) | 3,466 34 |
| Water Works (Supplies) | 5,317 79 |
| Total Payments | $2,393,567 05 |
| Cash balance in the Treasury, Nov. 30, 1887 | 168,787 29 |
| | $2,562,354 34 |

NOV. 30, 1887, (INCLUSIVE) WITH WM. W. DALLINGER, *City Treasurer.*

Cr.

| | |
|---|---|
| Bridge (Harvard) | 75 00 |
| Bridges (West Boston, Craigie's, and Prison Point) | 439 35 |
| Cambridge Cemetery | 17,229 80 |
| Cambridge Public Library | 1,534 34 |
| Cemetery Fund | 1,550 00 |
| City Buildings (Care and Repairs) | 2,503 74 |
| City Lands | 14,827 66 |
| Commissioners of Sinking Funds | 120,000 00 |
| Engineering | 1,500 00 |
| Fire Department | 334 46 |
| Incidental Expenses | 3,802 25 |
| Interest | 2,983 58 |
| Interest on Water Loan | 172 22 |
| Lighting Streets | 73 58 |
| Loan (Fresh Pond Land) | 15,000 00 |
| Loan (Harvard Bridge) | 10,000 00 |
| Loan (Sewer) | 30,000 00 |
| Loan (Temporary) | 555,000 00 |
| Loan (Water) | 95,000 00 |
| Notes Receivable | 7,651 39 |
| Pauper Department | 3,894 32 |
| Pauper Department (Almshouse) | 7,669 44 |
| Pauper Department (House Offal) | 6,856 59 |
| Police Department | 5,620 54 |
| School Department (Salaries) | 869 13 |
| School Department (Text Books and Stationery) | 338 99 |
| School Houses (Care and Repairs) | 358 56 |
| School Houses (New and Furniture) | 310 00 |
| Sewers (Construction) | 20,474 70 |
| Sewers (Construction, Bath Street) | 279 00 |
| Sewers (Maintenance) | 1,489 75 |
| Shade Trees and Public Grounds | 46 41 |
| State Aid | 11,026 00 |
| Stationery and Printing | 2 00 |
| Street Department (Paving) | 5,882 07 |
| Street Department (Repairs) | 2,563 35 |
| Street Department (Watering) | 12,241 00 |
| Tax (Corporation | 55,163 51 |
| Tax (Lien Account) | 609 28 |
| Tax (National Bank) | 17,613 97 |
| Taxes, 1881 | 22 00 |
| Taxes, 1882 | 51 96 |
| Taxes, 1883 | 132 08 |
| Taxes, 1884 | 415 76 |
| Taxes, 1885 | 3,386 40 |
| Taxes, 1886 | 60,638 20 |
| Taxes, 1887 | 911,523 60 |
| Trustees of Water Works Sinking Funds | 150,000 00 |
| Water Works (Construction) | 7 50 |
| Water Works (Construction, Fresh Pond) | 112 50 |
| Water Works (Construction, Stony Brook) | 1,141 72 |
| Water Works (Maintenance) | 861 19 |
| Water Works (Rates, Fines, etc.) | 211,300 82 |
| Water Works (Supplies) | 6,155 09 |
| Total receipts | $2,378,734 80 |
| Cash Balance in the treasury, Dec. 1, 1886 | 183,619 54 |
| | $2,562,354 34 |

WM. W. DALLINGER, *City Treasurer.*

# REPORT

OF THE

# COMMISSIONERS OF THE SINKING FUNDS OF THE CITY OF CAMBRIDGE.

---

*To the Honorable City Council:* —

THE undersigned, Commissioners of the Sinking Funds of the City, herewith present their twelfth annual report, for the year ending Nov. 30, 1887: —

*Dr.*

| | | |
|---|---|---|
| Amount of the funds Nov. 30, 1886, was . . . | $467,182 12 | |
| Amount of interest received during the year on investments . . . . . | 24,231 28 | |
| Amount of premium received during the year on securities bought . . . . . | 500 00 | |
| Amount received from the City of Cambridge, derived by law from taxation. . . . . | 59,695 00 | |
| | | $551,608 40 |

*Cr.*

| | | |
|---|---|---|
| Amount paid the City Treasurer of Cambridge, in a registered Low Land Loan bond of said City, maturing Oct. 1, 1887. . . . . | $120,000 00 | |
| Amount paid as *accrued interest* on bonds purchased for investment during the year . . . | 820 06 | |
| Amount paid as *premium* on bonds purchased for investment during the year . . . . . | 2,223 75 | |
| Amount of the funds Nov. 30, 1887, all securities taken at par . . . . . | 428,564 59 | |
| | | $551,608 40 |

SECURITIES BELONGING TO THE SINKING FUNDS, NOV. 30, 1887.

| | |
|---|---|
| Cambridge Water Loan, six per cent bonds, maturing July 1, 1892 . . . . . | $1,000 00 |
| Cambridge Paving Loan, six per cent bonds, maturing July 1, 1893 . . . . . | 11,000 00 |
| Cambridge Sewer Loan, six per cent bonds, maturing July 1, 1896 . . . . . | 11,000 00 |
| Amount carried forward . . . . . | $23,000 00 |

| | | |
|---|---|---|
| Amount brought forward . . . . . | $23,000 00 | |
| Cambridge Street Widening Loan, six per cent bonds, maturing July 1, 1904 . . . . . | 90,000 00 | |
| Cambridge Sewer Loan, six per cent bonds, maturing July 1, 1904 . . . . . | 2,000 00 | |
| Cambridge Street Widening Loan, six per cent bonds, maturing July 1, 1905 . . . . . | 14,000 00 | |
| Cambridge Sewer Loan, six per cent bonds, maturing July 1, 1905 . . . . . | 49,000 00 | |
| | | $178,000 00 |
| Town of Brookline, $3\frac{65}{100}$ per cent coupon bonds, maturing Feb. 1, 1888 . . . . . | $2,000 00 | |
| City of Charlestown, six per cent coupon bonds, maturing Jan. 1, 1889 . . . . . | 3,000 00 | |
| Town of Brookline, $3\frac{65}{100}$ per cent coupon bonds, maturing Feb. 1, 1889 . . . . . | 9,000 00 | |
| Town of Southboro, four per cent bonds, maturing March 25, 1889 . . . . . | 2,000 00 | |
| Town of Hyde Park, four per cent coupon bonds, maturing Nov. 1, 1889 . . . . . | 2,000 00 | |
| Town of Brookline, $3\frac{65}{100}$ per cent coupon bonds, maturing Feb. 1, 1890 . . . . . | 10,000 00 | |
| Town of Hyde Park, four per cent coupon bonds, maturing Nov. 1, 1890 . . . . . | 2,000 00 | |
| Town of Brookline, $3\frac{65}{100}$ per cent coupon bonds, maturing Feb. 1, 1891 . . . . . | 7,000 00 | |
| City of Cleveland, Ohio, four per cent coupon bonds, maturing Oct. 1, 1891 . . . . . | 14,000 00 | |
| City of Dayton, Ohio, five per cent coupon bonds, maturing Nov. 1, 1891 . . . . . | 2,000 00 | |
| Town of Hyde Park, four per cent coupon bonds, maturing Nov. 1, 1891 . . . . . | 2,000 00 | |
| Town of Brookline, $3\frac{65}{100}$ per cent coupon bonds, maturing Feb. 1, 1892 . . . . . | 9,000 00 | |
| Town of Hyde Park, four per cent coupon bonds, maturing Nov. 1, 1892 . . . . . | 2,000 00 | |
| Town of Brookline, $3\frac{65}{100}$ per cent coupon bonds, maturing Feb. 1, 1893 . . . . . | 8,000 00 | |
| City of Cleveland, Ohio, four per cent coupon bonds, maturing April 1, 1893 . . . . . | 2,000 00 | |
| City of Cleveland, Ohio, four per cent coupon bonds, maturing Oct. 1, 1893 . . . . . | 3,000 00 | |
| Town of Hyde Park, four per cent coupon bonds, maturing Nov. 1, 1893 . . . . . | 2,000 00 | |
| Town of Brookline, $3\frac{65}{100}$ per cent coupon bonds, maturing Feb. 1, 1894 . . . . . | 7,000 00 | |
| Town of Hyde Park, four per cent coupon bonds, maturing Nov. 1, 1894 . . . . . | 2,000 00 | |
| City of Fitchburg, four per cent coupon bonds, maturing Nov. 1, 1894 . . . . . | 3,500 00 | |
| Amount carried forward . . . . . | $93,500 00 | $178,000 00 |

| | | |
|---|---|---|
| Amount brought forward . . . . . | $93,500 00 | $178,000 00 |
| Town of Brookline, four per cent coupon bonds, maturing Feb. 1, 1895 . . . . . | 1,000 00 | |
| City of Dayton, Ohio, four per cent coupon bonds, maturing Oct. 1, 1895 . . . . . | 7,000 00 | |
| Town of Hyde Park, four per cent coupon bonds, maturing Nov. 1, 1895 . . . . . | 2,000 00 | |
| City of Dayton, Ohio, four per cent coupon bonds, maturing Oct. 1, 1896 . . . . . | 7,000 00 | |
| Town of Hyde Park, four per cent coupon bonds, maturing Nov. 1, 1896 . . . . . | 2,000 00 | |
| City of Fitchburg, four per cent coupon bonds, maturing Nov. 1, 1896 . . . . . | 2,000 00 | |
| City of Waltham, four per cent coupon bonds, maturing Jan. 1, 1897 . . . . . | 6,000 00 | |
| City of New Bedford, 3½ per cent registered bond, maturing April 1, 1897 . . . . . | 15,000 00 | |
| City of Dayton, Ohio, four per cent coupon bonds, maturing Oct. 1, 1897 . . . . . | 7,000 00 | |
| Town of Hyde Park, four per cent coupon bonds, maturing Nov. 1, 1897 . . . . . | 2,000 00 | |
| City of Fitchburg, 3½ per cent registered bond, maturing April 1, 1898 . . . . . | 10,000 00 | |
| City of Cleveland, four per cent coupon bonds, maturing Sept. 1, 1898 . . . . . | 1,000 00 | |
| City of Dayton, Ohio, four per cent coupon bonds, maturing Oct. 1, 1898 . . . . . | 4,000 00 | |
| City of Providence, 4½ per cent coupon bonds, maturing June 1, 1899 . . . . . | 64,000 00 | |
| City of Cleveland, $3\frac{65}{100}$ per cent coupon bonds, maturing Sept. 1, 1902 . . . . . | 1,000 00 | |
| City of Lawrence, four per cent coupon bonds, maturing July 1, 1904 . . . . . | 12,000 00 | |
| Town of Hopkinton, four per cent coupon bonds, maturing Sept. 30, 1904 . . . . . | 5,000 00 | |
| Town of Beverly, four per cent coupon bonds, maturing July 1, 1911 . . . . . | 9,000 00 | |
| | | $250,500 00 |
| | | $428,500 00 |
| Cash in first National Bank of Cambridge . . . . . | | 64 59 |
| | | $428,564 59 |

The funds are now earning an average rate of 4.85 per cent.

The bonded city debt, which the foregoing sinking funds are expected to pay, matures as follows, viz : —

| | |
|---|---|
| April 1, 1889, City Loan bonds, five per cent . . . . . | $100,000 00 |
| July 1, 1890, City Loan bonds, six per cent . . . . . | 20,000 00 |
| Amount carried forward . . . . . | $120,000 00 |

| | |
|---|---|
| Amount brought forward | $120,000 00 |
| July 1, 1893, City Loan bonds, five per cent gold | 150,000 00 |
| July 1, 1893, Land Loan bonds, six per cent | 10,000 00 |
| July 1, 1893, Paving Loan bonds, six per cent | 100,000 00 |
| July 1, 1893, Street Loan bonds, six per cent | 13,000 00 |
| July 1, 1894, Paving Loan bonds, six per cent | 130,000 00 |
| Apr. 1, 1895, Municipal Loan bond, four per cent | 200,000 00 |
| July 1. 1895, Paving Loan bonds, six per cent | 25,000 00 |
| Oct. 1, 1895, Sewer Loan bonds, six per cent | 20,000 00 |
| July 1, 1896, Sewer Loan bonds, six per cent | 29,000 00 |
| Nov. 1, 1896, Sewer Loan bonds, six per cent | 25,000 00 |
| July 1, 1903, Sewer Loan bonds, six per cent | 136,000 00 |
| July 1, 1903, Street Widening Loan bonds, six per cent | 10,000 00 |
| July 1, 1904, Sewer Loan bonds, six per cent | 295,000 00 |
| July 1, 1904, Street Widening Loan bonds, six per cent | 90,000 00 |
| July 1, 1905, Sewer Loan bonds, six per cent | 144,000 00 |
| July 1, 1905, Street Widening Loan bonds, six per cent | 14,000 00 |
| Aug. 1, 1905, Cambridge Cemetery Extension Loan bond, four per cent | 65,000 00 |
| Nov. 1, 1907, Sewer Loan bond, four per cent | 30,000 00 |
| Oct. 1, 1917, Harvard Bridge Loan bond, four per cent | 10,000 00 |
| Total bonded City debt | $1,616,000 00 |

City bonds issued in 1877, on account of the Low Land filling, and the last of that series, to the amount of $120,000.00 of five per cents, matured October 1st, and were paid from this fund. New City bonds have been issued to the amount of $30,000.00 of four per cents, dated Nov. 1, 1887, and payable in twenty years, on account of the new relief sewer in Mason and Garden Streets, and also $10,000,00 of four per cent bonds, dated Oct. 1, 1887, and payable in thirty years, on account of the new Harvard bridge to Boston. Deducting these from amount of bonds paid October 1st, shows a net reduction of the debt of the city for the year of $80,000.00. The funded debt now outstanding is $1,616,000.00, from which deducting the amount of Sinking Fund assets at par, $428,564.59, leaves the net amount of City Debt, Dec. 1, 1887 (exclusive of the Water Debt), $1,187,435.41, or about two per cent on the present valuation of the City.

Respectfully submitted,

CHAS. H. SAUNDERS,
JOS. A. HOLMES,
S. S. SLEEPER,
FRANK A. ALLEN,
JOHN C. BULLARD,
GEO. H. HOWARD,

*Commissioners of the Sinking Funds of the City of Cambridge.*

Cambridge, Dec. 17, 1887.

# REPORT

OF THE

# TRUSTEES OF THE SINKING FUND OF THE CAMBRIDGE WATER WORKS.

---

*To the Honorable the City Council:—*

THE undersigned, trustees of the Sinking Fund of the Cambridge Water Works, herewith submit their annual report of the fund committed by law to their charge:

*Dr.*

| | | |
|---|---|---|
| The amount of the fund at the last report, Nov. 30, 1886, was . . . . . | $892,005 97 | |
| Amount received from the City Treasurer of Cambridge, the same having been derived from the annual water rates, and being equal to three per cent on the amount of the outstanding Water bonds . . . . . | 51,465 00 | |
| Amount received as interest on investments . | 37,840 72 | |
| Amount received as premium on securities sold | 5,608 80 | |
| Amount received from the City Treasury, as surplus in the running accounts of the Water Works for 1887 . . . . . | 1,676 52 | |
| | | $988,597 01 |

*Cr.*

| | | |
|---|---|---|
| Amount paid the Treasurer of Cambridge with which to meet the Water bonds maturing April 1, 1887 . . . . . | $150,000 00 | |
| Amount of the fund Nov. 30, 1887, all securities taken at par . . . . . | 838,597 01 | |
| | | $988,597 01 |

The following is a list of securities belonging to the fund, Nov. 30, 1887:—

| | |
|---|---|
| Cambridge Water Loan, six per cent bonds maturing April 1, 1888 . . . . . | $25,000 00 |
| Amount carried forward . . . . . | $25,000 00 |

| | | |
|---|---|---|
| Amount brought forward | $25,000 00 | |
| Cambridge Water Loan, six per cent bonds, maturing May 1, 1889 | 8,000 00 | |
| Cambridge Water Loan, six per cent bonds, maturing July 1, 1890 | 31,000 00 | |
| Cambridge Water Loan, six per cent bonds, maturing May 1, 1891 | 26,000 00 | |
| Cambridge Water Loan, six per cent bonds, maturing July 1, 1892 | 1,000 00 | |
| Cambridge Water Loan, four per cent bonds, maturing Nov. 1, 1894 | 6,000 00 | |
| Cambridge Water Loan, six per cent bonds, maturing April 1, 1895 | 37,000 00 | |
| Cambridge Water Loan, 3½ per cent registered bond, maturing after April 1, 1896 | 100,000 00 | |
| Cambridge Water Loan, 3½ per cent registered bond, maturing after July 1, 1896 | 75,000 00 | |
| Cambridge Water Loan, six per cent bonds, maturing July 1, 1896 | 46,000 00 | |
| Cambridge Water Loan, six per cent bonds, maturing July 1, 1897 | 16,000 00 | |
| Cambridge Water Loan, five per cent registered bond, maturing July 1, 1898 | 12,500 00 | |
| Cambridge Contingent Loan, four per cent note, dated Dec. 1, 1883 | 200,000 00 | |
| | | $583,500 00 |
| Town of Southboro, four per cent bonds, maturing Mar. 25, 1888 | $2,000 00 | |
| Town of Southboro, four per cent bonds, maturing Mar. 25, 1890 | 6,000 00 | |
| Town of Hyde Park, four per cent bonds, maturing July 1, 1891 | 5,000 00 | |
| City of Salem, four per cent bonds, maturing July 1, 1892 | 17,000 00 | |
| City of Fall River, four per cent bonds, maturing May 1, 1895 | 3,000 00 | |
| Town of Arlington, five per cent bonds, maturing July 1, 1898 | 30,000 00 | |
| City of Boston, four per cent bonds, maturing Jan. 1, 1899 | 50,000 00 | |
| City of Boston, four per cent bonds, maturing April 1, 1900 | 4,000 00 | |
| City of Fall River, four per cent bonds, maturing Aug. 1, 1900 | 13,000 00 | |
| City of Cleveland, O., $3\frac{65}{100}$ per cent bonds, maturing Sept, 1, 1902 | 3,000 00 | |
| City of Lawrence, four per cent bonds, maturing July 1, 1904 | 18,000 00 | |
| City of Providence, five per cent bonds, maturing July 1, 1906 | 50,000 00 | |
| Amounts carried forward | $201,000 00 | $583,500 00 |

| | | |
|---|---|---|
| Amounts brought forward . . . . . | $201,000 00 | $583,500 00 |
| Town of Winchester, four per cent bonds, maturing May 1, 1908 . . . . . | 10,000 00 | |
| Town of Beverly, four per cent bonds, maturing July 1, 1911 . . . . . | 20,000 00 | |
| | | $231,000 00 |
| | | $814,500 00 |
| Cash in First National Bank of Cambridge on interest . | | 24,097 01 |
| Total value of the fund, Nov. 30, 1887, all securities taken at par . . . . . | | $838,597 01 |

The bonded water debt which the foregoing fund is expected to pay, matures as follows, viz: —

| | |
|---|---|
| April 1, 1888, six per cent coupon . . . . . | $175,000 00 |
| May 1, 1889, six per cent coupon . . . . . | 112,000 00 |
| July 1, 1890, six per cent coupon . . . . . | 60,000 00 |
| May 1, 1891, six per cent coupon . . . . . | 50,000 00 |
| July 1, 1892, six per cent coupon . . . . . | 335,000 00 |
| April 1, 1894, six per cent coupon . . . . . | 150,000 00 |
| Nov. 1, 1894, four per cent coupon . . . . . | 36,000 00 |
| April 1, 1895, six per cent coupon . . . . . | 160,000 00 |
| April 1, 1896, 3½ per cent registered (or to April 1, 1911) | 100,000 00 |
| July 1, 1896, six per cent coupon . . . . . | 103,000 00 |
| July 1, 1896, 3½ per cent registered (or to July 1, 1911) | 75,000 00 |
| July 1, 1897, six per cent coupon . . . . . | 16,000 00 |
| July 1, 1898, five per cent registered . . . . . | 12,500 00 |
| Nov. 1, 1906, 3½ per cent registered . . . . . | 43,000 00 |
| Oct. 1, 1907, four per cent registered . . . . | 75,000 00 |
| Oct. 1, 1907, four per cent registered . . . . | 15,000 00 |
| Nov. 1, 1907, four per cent registered . . . . | 20,000 00 |
| May 1, 1910, four per cent registered . . . . | 133,000 00 |
| May 1, 1910, four per cent coupon . . . . . | 155,000 00 |
| Total funded water debt . . . . . | $1,825,500 00 |

There is nothing of special interest to report in addition to the foregoing figures. The $150,000.00 of water bonds, which matured April 1, 1887, have all been presented and paid, leaving the fund smaller by $53,408.96, than it was at the date of our last report. During the coming year a still further reduction will be made by the payment of $175,000.00 six per cent bonds maturing.

Respectfully submitted,

WM. E. RUSSELL,
JOHN H. CORCORAN,
WM. W. DALLINGER,
*Trustees of the Sinking Fund of the Cambridge Water Works.*

CAMBRIDGE, Dec. 1, 1887.

# REPORT

OF THE

# TRUSTEES OF THE DOWSE INSTITUTE.

---

CAMBRIDGE, MASS., Nov. 30, 1887.

*To the Honorable City Council of Cambridge:—*

THE Board of Trustees of the Dowse Institute respectfully reports that a course of eight scientific and literary lectures, with one reading and concert, was given in Union Hall, Cambridgeport, beginning Nov. 9, 1886, and closing Jan. 27, 1887.

An attested copy of the accounts of the Treasurer is herewith transmitted, showing the exact amount of receipts and expenditures to date.

W. W. WELLINGTON,
W. A. BULLARD,
FRANK A. ALLEN,
} *Board of Trustees.*

W. A. BULLARD, TREASURER, IN ACCOUNT WITH DOWSE INSTITUTE.

*Dr.*

| | | |
|---|---|---|
| Balance from last account, Nov. 1886 . . . . . | $798 30 | |
| City of Cambridge for one year's interest on Fund . . . . . | 600 00 | |
| Sale of tickets . . . . . | 583 45 | |
| | | $1,981 75 |

*Cr.*

| | |
|---|---|
| Concert, Nov. 9, 1886 . . . . . | $265 00 |
| Alfred R. Wallace, for a lecture, Nov. 16 . . . | 100 00 |
| Carroll D. Wright, " " " 23 . . . | 50 00 |
| Charles Devens, " " " 30 . . . | 100 00 |
| Robert Collyer, " " Dec. 4 . . . | 50 00 |
| Amount carried forward . . . . . | $565 00 |

| | | |
|---|---|---|
| Amount brought forward | $565 00 | |
| H. H. Ragan, for a lecture Dec. 14 | 100 00 | |
| Justin McCarthy, " " " 28 | 200 00 | |
| Prof. J. W. Churchill, for a reading, Dec. 21 | 100 00 | |
| T. W. Higginson, for a lecture, Jan. 4, 1887 | 50 00 | |
| Alfred F. Holt, " " " 27 | 50 00 | |
| Cambridge Tribune, advertising | 22 00 | |
| Cambridge Press, for advertising | 28 00 | |
| Cambridge Chronicle, " | 30 00 | |
| Cambridge News, " | 25 00 | |
| Geo. E. French and others, distributing circulars | 26 62 | |
| John Ford & Son | 68 50 | |
| C. H. Stevens, selling tickets | 8 00 | |
| C. L. Russell, $10; M. Driscoll, $10; F. M. Buffin, $10; doorkeepers | 30 00 | |
| H. E. Lombard, printing | 5 75 | |
| James Pike, carriages | 10 00 | |
| Postage, express, etc. | 6 43 | |
| Union Hall Association | 360 00 | |
| Balance | 296 45 | |
| | | $1,981 75 |

ATTEST, W. A. BULLARD, *Treasurer.*

# REPORT

OF THE

# TRUSTEES OF THE BRIDGE CHARITABLE FUND.

---

*To the Honorable City Council :—*

THE eleventh annual report of the condition of the Bridge Charitable Fund is herewith submitted.

| | |
|---|---|
| The amount of this fund to Jan. 19, 1887, was . . . . . | $2,313 75 |
| Add interest to Jan. 19, 1888 . . . . . | 93 46 |
| Total . . . . . | $2,407 21 |
| Two-thirds of this added interest is due to the Overseers of the Poor, under the provisions of the bequest, the amount being . . . . . | 62 30 |
| This being deducted leaves net amount of fund, Jan. 19, 1888 | $2,344 91 |

The interest accumulations upon the fund, payable from year to year to the Overseers of the Poor, have been withdrawn, and separately deposited in the Cambridgeport Savings Bank in the name of the Mayor as trustee for the Overseers of the Poor. The amount thus deposited is $306.78.

The sum above stated, as representing the fund, is also on deposit in the Cambridgeport Savings Bank. The fund is accumulating by additions of interest, year by year, and needs but little attention from the trustees. A full history of the bequest has been given in former reports, to which the attention of those interested is invited.

WM. E. RUSSELL,
EDW. W. HINCKS,
JOHN H. CORCORAN, } *Trustees.*

# REPORT

OF THE

# TRUSTEES OF THE SANDERS TEMPERANCE FUND.

---

*To the Honorable City Council:—*

THE twenty-second annual report of the Trustees of the Sanders Temperance Fund is respectfully submitted.

The venerable missionary of this fund, Mr. Alonzo Stewart, has attended so faithfully to his official duties, that he has left no work for the trustees to perform. His interest in the cause of temperance is the growth of many years, and he has endeavored by exacting and laborious service in the cause, to fulfil the wishes of the donor of this bequest.

The fund continues to be represented by the authorized note of the City Treasurer for the sum of $10,000.00, payable to the Trustees. The interest upon this note, fixed at six per cent per annum, is paid to the missionary as his salary. The amount of the fund is held in the City Treasury, and accounted for at the end of each year, as one of the city trust funds.

WM. E. RUSSELL,
JOSEPH A. BALL,
JOHN H. CORCORAN,
WARREN IVERS,
OLIVER H. DURRELL,
} *Trustees.*

# REPORT

OF THE

# SANDERS TEMPERANCE FUND MISSIONARY.

---

*To the Trustees of the Sanders Temperance Fund : —*

GENTLEMEN : — In accordance with your requirements, I present the report of my labors for the past year. In some respects, the work has been more encouraging than in former years—the legalized sale of intoxicants has been removed, and the poor inebriate has been free from the temptations of gilded saloons and enticing bar-rooms. Yet the terrible evil still exists, and will exist till the end of time. Could the founder of this mission know as we do, in this day, the terrible increase of this vice in our own and neighboring cities, he might be led to exclaim: "Of what avail have been my efforts?" Yet we know that great good has been accomplished by this fund; old drunkards have been reformed, and young men have been hindered from entering the path that leads down to death.

My health, the past year, has been so good that there has been no interruption to my work. I did not even feel the need of a vacation, and this has given me extra time for the work required of me.

I have made direct personal appeals to more than fifteen hundred persons brought before the Court for drunkenness, and kindred vices; have taken pledges of total abstinence from eighty-six men and women, who were brought before the Court; have solicited and distributed more than forty-one thousand pages of temperance and religious literature; have been at the House of Correction regularly on the Sabbath, conducting religious exercises in the female department.

I have tried to be present at every session of the Court, having missed but three for the year. Very often a feeling of discour-

agement comes over me, when I realize the *vastness* of the work and the *small results;* but through it all I strive to scatter seeds of good, leaving the result with Him who alone can bless our feeble efforts.

In closing, I wish to thank the court and police officers, for their kindness towards me at all times.

Respectfully submitted,

ALONZO STEWART,

*Temperance Missionary.*

# ANNUAL REPORT

OF THE

# OVERSEERS OF THE POOR OF CAMBRIDGE.

---

CAMBRIDGEPORT, Dec. 22, 1887.

*To the Honorable the City Council of the City of Cambridge:—*

GENTLEMEN:—The Overseers of the poor herewith present their annual report for the year ending Nov. 30, 1887.

No change has been made in the membership of the Board during the past year.

In April last, Henry A. Doherty, previously chosen to fill the unexpired term of Knowlton S. Chaffee who had resigned, was unanimously reëlected by the city council for a period of five years.

Dr. Lewis L. Bryant was reëlected in April last as Assistant City Physician. He reports 1900 professional visits to 471 patients outside of the almshouse since Nov. 30, 1886. Of this number 143 had a legal settlement in this city, and 111 of them were born in Cambridge. Of these 471 patients, 206 were males, 265 were females and 169 were children. There have been 21 women attended in childbirth outside of the almshouse. Twenty-three persons have been attended at the police stations (16 males and 7 females); 6 patients have been sent to the hospital for treatment. Thirty-nine persons have been examined relative to insanity, and 33 have been sent to the state lunatic hospitals; 19 persons in this practice have died outside of the almshouse.

In accordance with the custom since the organization of the Board in May, 1877, all applicants for aid are required to give a statement of their residence, taxes, and all necessary evidence in support of their claim for relief. There are now 5,138 of these histories, embracing 15,414 persons, on file at the office of the

Board; 411 of these papers have been made within the past year, covering 1233 persons (489 males, 744 females), 357 of whom were adults, 876 minors. Of these families 132 are settled in Cambridge, 78 in other cities and towns, and 201 are State paupers. There have been 42 histories revised, under the changes in the pauper laws, within the year.

In connection with the above statement the Board earnestly calls your attention to the importance of providing a secure fireproof receptacle for the exceedingly valuable histories, records, books and other matter prepared at such great cost of time and money, and which have been steadily accumulating for more than ten years. These are now insecurely protected at the office of the Board, and their loss by fire would be serious and irreparable.

The number of paupers supported by the city at the various institutions within the past year was as follows: —

| | |
|---|---|
| City Almshouse | 297 |
| State Reform School | 3 |
| State Industrial School | 3 |
| State Work-house | 1 |
| State Lunatic Hospitals | 88 |
| Middlesex House of Correction | 6 |
| Massachusetts School for Feeble Minded | 6 |
| | 404 |

The expenditures for outside aid have been $24,225.17. Of this amount $12,744.70 has been expended for the 88 insane at the State hospitals, embracing 37 at the Danvers hospital, 15 at the Worcester Lunatic Hospital, 13 at the Worcester Insane Asylum, 4 at the Taunton Lunatic Hospital, 1 at the Tewksbury Insane Asylum, 1 at the Bridgewater Insane Asylum, 2 at the Northampton Lunatic Hospital (21 new cases the present year) who have a legal settlement in Cambridge, against $12,400.74 last year. This is an increase of $343.96 in one year in the cost to the city for its insane poor.

In addition to the above must be considered the expense of 27 cases of the mildly insane class at the almshouse. The practice of transferring such cases as, after careful investigation of their symptoms and condition, were deemed suitable, has been pursued with very satisfactory results. If more of this class could be accomodated at the almshouse it would result in a saving to

the city, as they can be supported there at a less cost than in the hospitals.

The receipts have been $3,894.32, leaving a net cost of $20,-330.85 for the support of the poor outside of the almshouse.

**Almshouse.**

| | |
|---|---|
| Total number of inmates during the year . . . . | 297 |
| Total number present, Nov. 30, 1887 . . . . . | 128 |
| Average monthly number . . . . . | 144 |

The Board is pleased to report satisfactory results arising from the plan of work for the boys in seating chairs which was introduced last year. By this system the boys are provided an agreeable employment, and an allowance is given them for the extra work done, and a small revenue is gained by the city.

A fire occurred at the Almshouse on the night of August 10th, by which several wooden out-buildings used for storage, etc., were consumed, and others damaged. This necessitated the erection of a new building for the same general purposes, for which the City Government on September 29, 1887, made an especial appropriation of $4,000.00. To this amount there has also, by permission and vote of the City Council, been added from unexpended balances of the Almshouse, not exceeding $1,500.00, making in all $5,500.00. This new two-story brick building, separated from the main structure, is now well advanced towards completion, and will be a valuable and much needed addition to the Almshouse accommodations. It will contain on the lower floor a carpenter's shop, a chair seating shop, and a room for the reception of the dead of the Almshouse and for *post mortem* examinations. The upper floor is intended as a school room for the Almshouse school which is now held in the main building. The removal of the school to this new building will give much pleasanter and more convenient quarters for the scholars and will also give more room for the other inmates.

The need of an ambulance to convey the sick from their homes to the Almshouse and the hospitals has become very essential. The early attention of the City Council is called to this matter as an absolute necessity, which, with safety, can be no longer deferred.

The Board deems it important to refer in this report to the

need of better accommodations for the mildly insane inmates of the Almshouse, and to suggest the propriety of erecting a suitable building where this unfortunate class, which is increasing so constantly in number, can be provided with more comfortable and convenient quarters.

During the past year the city has been called to expend several hundred dollars for the board, treatment and care of the sick poor at the Cambridge Hospital. The Board would suggest the desirability of providing in some way for this expense. They believe that even if they had a *legal* right they have no moral right to pauperize such persons, or their children by the payment of these bills. An especial appropriation we believe should be made by the city for the purpose.

The school at the Almshouse, which has been under the charge of Miss Alice H. Fawcett, since the resignation of Miss Harriette A. Butler, has made commendable progress.

By the report of the Superintendent of the Almshouse it appears that 136 inmates have been admitted during the year, 118 entered on permits from the secretary of the Board, and 18 were sentenced by the court. Two boys and two girls have been committed as neglected children. Fourteen boys have been sentenced to the almshouse truant school during the year. They have been committed for a period of two years by the District Court of Cambridge. Of the 297 inmates present within the year 194 were adults and 103 were minors. There have been 157 discharged, of whom 107 were males and 50 females.

Included in the total number of inmates present Nov. 30, 1887, are 27 of the chronic mildly insane class, 7 of whom are males and 20 females.

The board would respectfully call the attention of the City Council to the report of the warden in 1885, in which, referring to the west wing of the almshouse, he states:

"This wing of the building is the weak spot in our system of classification. Here the sane and the insane, helpless age and helpless infancy, are in close and unavoidable contact, under circumstances which suggest grave physical and moral dangers against which the only practical assurance is absolute separation. The question of better provision for the dependent insane of the city is of such pressing importance that its settlement cannot be long delayed. But the moral danger of having a

score of children, mostly girls, living in daily association with the peevish and irascible, breathing constantly the atmosphere of adult pauperism, calls for speedy remedy. This may be reached in two ways, first by establishing a real home upon the city property in this vicinity in which these children may be under elevating influences, and enjoy home comforts and training, or, if this is considered impracticable, then second, by making special effort to place them as soon as possible in country homes."

The Assistant City Physician reports 206 medical visits at the almshouse to 109 persons, 59 of whom were males and 50 females. There have been 18 deaths at the institution during the year, all resulting from chronic diseases and some of these patients were admitted during the last stages of their illness. There were twelve patients present Nov. 30, 1887 in the almshouse hospital wards, two males and ten females. One woman has been attended in childbirth during the year at the institution.

A schedule of personal property, as presented in detail by the superintendent, shows a valuation of $13,168.47.

The expenditures for the almshouse during the year have been $19,560.44, and the receipts have been $1,338.20 leaving a net cost of $18,222.24.

Finding that the previous methods of keeping the almshouse accounts might be manifestly improved, the Overseers, some months ago, appointed a special committee to revise the accounts and prepare special books and methods of entry. A new and careful system has therefore been introduced and is now in good working order. By a complete and thorough classification of all almshouse, farm, ledge and offal expenditures and receipts the financial condition of each department can be seen at a glance at any moment.

A new expense has been placed upon the city treasury during the past year by the act of the legislature requiring that all children in the almshouse, above the age of four years, shall be boarded in suitable families outside of the institution. There are twelve of this class who have been thus placed under this law at an average cost of about three dollars a week for each child.

**Farm and Ledge.**

The city farm has been cultivated to a larger extent than in previous years, and the revenue from the sale of farm produce has been greater than that of any former year.

The regular force employed at the quarry has consisted of two men. The male inmates of the almshouse have also aided in the work. On account of the demand for stone to supply purchasers, as well as to speedily furnish that which has been required for the foundation of the new brick building, an addition to the regular number of employés has been found necessary during a part of the year. All able-bodied men applying at the office of the board for aid have been required to work at the ledge in return for assistance given.

The expenditures for the farm and ledge have been during the year $3,882.67, and the receipts have been $6,331.24, leaving an excess of reeeipts above expenditures of $2,448.57

**House Offal.**

The system of collecting the house offal, which has been carried on since March 5, 1862,—at which time it was placed in charge of the Overseers of the Poor by an order of the City Council covering only that year,—has without any subsequent action of the City Council, been followed since the year named.

The expenditures during the year have been $15,422.29, and the receipts have been $6,856.59. The net cost for the collection of the city offal has been $8,565.70, an increase of $585.09 over last year.

**Recapitulation.**

| | |
|---|---|
| Total expenditures, outside aid | 24,225 17 |
| Total receipts | 3,894 32 |
| Net cost | 20,330 85 |
| Total expenditures, almshouse, farm and ledge | 23,443 11 |
| Total receipts | 7,669 44 |
| Net cost | 15,773 67 |
| Total expenditures, exclusive of house offal | 47,668 28 |
| Total receipts | 11,563 76 |
| Net cost of care of the poor | 36,104 52 |

Respectfully submitted,

WM. E. RUSSELL,
CHAS. E. VAUGHAN,
SUMNER ALBEE,
CHARLES WALKER,
HENRY A. DOHERTY,
MICHAEL CORCORAN.

*Overseers of the Poor.*

# CITY CLERK'S ACCOUNT OF FEES AND LICENSES.

CAMBRIDGE, Dec. 14, 1887.

THE undersigned herewith presents an account of the sums received for Fees and Licenses during the year ending November 30, 1887.

| | |
|---|---|
| Auctioneers' Licenses | $30 00 |
| Pool and Billiard Table and Bowling Alley Licenses | 134 00 |
| Wagon and Carriage Licenses | 44 00 |
| Intelligence Offices | 16 00 |
| Junk, Stores and Collectors | 275 00 |
| Pawnbrokers | 6 00 |
| Recording Mortgages, etc. | 475 75 |
| Marriage Certificates | 345 50 |
| Liquor Licenses | 37 00 |
| Dog Licenses, 20 cents each license issued | 409 80 |
| Sundries | 110 75 |
| | $1,883 80 |

All of which have been paid to the City Treasurer.

The receipts for Dog Licenses have been as follows:

| | |
|---|---|
| 1766 Males at $2.00 | $3,532 00 |
| 283 Females at $5.00 | 1,415 00 |
| Total | $4,947 00 |

Of this amount, the Clerk's fee, (20 cents for each license issued) amounting to $409.80 has been paid into the City Treasury, and the sum of $4,537.20 has been paid into the County Treasury.

Respectfully submitted,

WALTER W. PIKE,

*City Clerk.*

# CITY TREASURER'S FEES

FOR YEAR ENDING NOV. 30, 1887.

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*To the Honorable the City Council:—*

In compliance with the ordinance I have the honor to report that the total amount of official fees received by me during the year ending November 30, 1887 was $1,015.78. Said amount was received: —

| | | |
|---|---|---|
| From summonses | $632 25 | |
| From preparing advertisements | 119 00 | |
| From advertisements | 84 10 | |
| From posting notices | 46 35 | |
| From poundage | 08 | |
| From making deeds | 134 00 | |
| | | $1,015 78 |

Respectfully submitted,

WM. W. DALLINGER, *City Treasurer.*

# REPORT

OF THE

# CITY MESSENGER.

CAMBRIDGE, Dec. 20, 1887.

*To the Honorable, the City Council of the City of Cambridge:—*

GENTLEMEN:— The undersigned begs leave to present his report of the amount of stationery purchased during the year, together with a statement of the amount of stationery delivered to the different departments, and the amount of stock on hand at the close of the year ending November 30, 1887.

| | |
|---|---|
| Stock of stationery on hand, Dec. 1, 1886 | 188 83 |
| Purchased during the year | 1,459 20 |
| Total | 1,648 03 |

Delivered to heads of departments as follows:—

| | |
|---|---|
| Street | 34 01 |
| Engineering. | 30 52 |
| Auditor | 69 66 |
| Treasurer | 344 21 |
| Police | 106 29 |
| Lamp | 6 98 |
| Fire | 3 08 |
| Inspector of Milk | 11 96 |
| Clerk of Committees | 152 58 |
| City Clerk | 221 79 |
| Harbor Master | 7 24 |
| Probation Officer | 7 86 |
| City Messenger, use of City Council, etc. | 179 55 |
| Superintendent Public Buildings | 9 45 |
| Assessors | 175 30 |
| City Solicitor | 24 35 |
| Stock of Stationery on hand Dec. 1, 1887 | 263 20 |
| Total | 1,648 03 |

Respectfully submitted,

FRANCIS L. PRATT,
*City Messenger.*

# ANNUAL REPORT

OF THE

# TRUSTEES OF THE PUBLIC LIBRARY.

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*To the City Council of Cambridge:—*

THE Trustees have the honor to present their Annual Report, being the thirtieth since the opening of the library and the ninth under the title of the Cambridge Public Library.

By an ordinance of the city, the Trustees are required to present to the City Council annually "such information or suggestions as they may deem desirable." Appended hereto and forming a part hereof, is the report of our faithful and competent Librarian. Her recommendations are valuable, and will be favorably considered by the Trustees. The report shows that the circulation of books the past year has exceeded that of any other since the foundation of the library. This indicates that it is increasing in public favor. Our accumulation of books has been such as to render our library accommodations entirely insufficient, and we therefore approve of the Librarian's suggestion regarding the storage of public documents.

In this report we are glad to omit all appeal for a new building, a subject that has been for years the principal topic of our annual communications to the City Government. We congratulate our citizens that we are soon to have a library building in every way worthy of the character and renown of our city. We allude to the magnificent donation of Mr. Frederick H. Rindge, to whom the city of Cambridge is under a debt of unceasing gratitude. When the splendid edifice which is the subject of Mr. Rindge's gift, shall be completed, other benefactions will follow, and our library will enter upon a career of increased usefulness and prosperity. Being under the impression that our new building will not be ready for occupation the coming year,

we do not deem it advisable to make any unusual outlay in the meantime, though the present needs of the library are great. We therefore ask for an appropriation of six thousand five hundred dollars for the supply of books and the current expenses for the year 1888.

The following is a report of the appropriations and expenses for the past year:

| | |
|---|---|
| Appropriation for library and catalogue | $8,500 00 |
| Excess of receipts over appropriation | 34 34 |
| | $8,534 34 |

**Expenses.**

| | | |
|---|---|---|
| Salaries | $2,605 25 | |
| Rent | 1,000 00 | |
| Insurance | 231 00 | |
| Books and periodicals | 1,975 52 | |
| Binding | 566 96 | |
| Gas and water | 281 99 | |
| Printing and stationery | 180 45 | |
| Furniture and repairs | 66 97 | |
| Petty expenses | 54 28 | |
| New catalogue | 1,560 23 | |
| | | $8,522 65 |
| Unexpended balance | | $11 69 |

Respectfully submitted,

SAMUEL L. MONTAGUE,
EDWARD R. COGSWELL,
HENRY H. GILMORE,
CHARLES WALKER,
JABEZ A. SAWYER,
JOHN H. CORCORAN,
JOSEPH J. KELLEY,
*Trustees of the Cambridge Public Library.*

# LIBRARIAN'S ANNUAL REPORT.

*To the Trustees of the Cambridge Public Library :—*

GENTLEMEN: The appeal for more room which has heretofore been the burden of the Librarian's Report, must, in this her fourteenth, give place to congratulation and thanksgiving. The dawn of a better day for the library has already appeared, for we are promised that it shall soon have a building of its own.

The question for your consideration now is, "How can the library be made more useful and therefore more valuable?" The generous plans of its benefactor, Mr. Frederick H. Rindge, include the public schools, and it is his desire, as it has been yours, that the library and schools should work in concert for the good of the city.

As a means to this end, will it not be well that some of the purchases of another year include works on industrial art and education? The subject of manual training is receiving general attention, and already the demand for our few books on this topic is increasing. The mechanics of our city are learning to appreciate the real help to be had from the library. The carpenter calls for books giving plans, estimates, etc., or for the illustrated works on architecture. The engineers and electricians make frequent use of the special manuals helpful to them. The art student and the artist often use our books on design or decoration, and the valuable additions recently made to this department are sure to be appreciated. When we have a quiet, well-lighted room, where such use can be made of the reference library, our readers will learn how to study at the library.

Our regulations now require an applicant for a card to be fourteen years of age before he receives one. Many of our young readers use cards given to their parents. Would it not be wise so to modify our rule that any child in the highest class in the Grammar school, that is within a year of the High

school, be allowed a card irrespective of age? In some libraries the teachers are allowed special cards by which they can draw additional books for use in school. This necessitates buying many copies of some books. The Worcester library buys twenty-five copies of such books as the schools are sure to use.

Since the library must remain in its present rooms till moved to a house of its own, would it not be possible to find temporary storage elsewhere for the U. S. public documents? This would relieve the crowded state of the book-room, and enable us to preserve the present arrangement of subjects.

The catalogue continues to meet the approval of our readers, and requests for a copy of it have been received from several other libraries. A copy has been sent to each of the High and Grammar schools of the city, seven have been given to other libraries, and thirty-one copies sold. The small number sold, is no doubt owing to the fact that many of our most constant readers had previously bought the 1875 catalogue and its supplements. When the library is moved to its new rooms, many of our readers, who choose their books at the library will doubtless prefer to have catalogues at home.

It will be remembered that the books in the library were formerly covered with dark paper. This was changed for a light cover as the book-room was darkened by additional cases. Several thousand volumes are still in dark covers. Shall the work of re-covering, that the library may be uniform in color, be done before or after removal? It may not be necessary to decide the question of closing the library for this purpose before the summer of 1889, but it should be borne in mind that any extra library work cannot well be done in the winter months, nor would it be kind to the public to close our doors for any length of time at that season.

A shelf-list of the entire library, that is, a numerical list of the contents of each shelf, should be completed before the library is moved. It can be made by the librarian from the card catalogue. It would be wise to have a separate list of children's books printed on durable paper. This would prevent much of the wear and tear of the general catalogue, and aid the young people in their choice of books. If the librarian were relieved from desk attendance, her leisure from current catalogue work might be given to the preparation of such a list.

The use of the library is increasing with the interest awakened by its new building, and it is hoped a fund may be established, the annual income of which may be spent for books. The purchases of the past year have added many valuable books of history, travel and art to these departments of the library. Two lists of additions have been published since the catalogue. These, with the accessions of another year, will make it necessary to issue a supplement to the catalogue early in 1889, or before the library is moved.

It will be remembered that six hundred and fourteen volumes were withdrawn last year, most of them the paper volumes known as the Franklin Square Library. New books were used to replace these, five hundred and twelve last year, and one hundred and two this year. This accounts for the apparent discrepancy in the accession numbers.

During this year five volumes have been lost. These could not be traced to the right parties, who had moved out of the city, or failed to give their correct addresses. Two volumes lost were replaced by the losers.

The statistics of library work are as follows:—

**Books Issued.**

| | | | |
|---|---|---|---|
| First quarter, | 22,134 | Average per day | 296 |
| Second quarter, | 23,062 | " " " | 298 |
| Third quarter, | 18,051 | " " " | 244 |
| Fourth quarter, | 21,035 | " " " | 277 |
| Total for year, | 84,282 | " " " | 279 |

The largest issue for any day . . . . . 613, February 19
The smallest . . . . . 100, June 29

This is the largest annual issue in the history of the library. The issue of 1885, 83,016 stands next, that of last year being only 78,206. This increase is probably due to our new catalogue, and to the public interest in the brighter prospects of the library.

**Books Added.**

| | Purchased. | Given. | Totals. |
|---|---|---|---|
| First quarter | 130 | | 130 |
| Second quarter | 185 | 38 | 223 |
| Third quarter | 245 | 8 | 253 |
| Fourth quarter | 369 | 5 | 374 |
| | 929 | 51 | 980 |

Present number of books in the library . . . . . 19,352

## List of Donors.

| | | | |
|---|---|---|---|
| Mr. C. G. H. Bennink | 2 | Dr. E. R. Cogswell | 1 |
| State of Massachusetts | 7 | Maverick National Bank | 1 |
| United States | 29 | Miss L. D. Bullard | 1 |
| Harvard University | 1 | City of Cambridge | 1 |
| Mr. Robbins Battell and sister | 1 | | — |
| Hon. E. D. Hayden | 5 | | 51 |
| Hon. Leopold Morse | 2 | | |

| | |
|---|---|
| Number of postals sent for books overdue | 1,927 |
| Books lost during the year | 5 |
| Books covered | 11,148 |
| Books bound or repaired | 4,110 |
| Books replaced because worn out | 227 |
| Number of new cards issued | 1,476 |
| Present number of card-holders | 9,815 |

## Receipts for Fines and Catalogues.

| | Fines. | Catalogues. | |
|---|---|---|---|
| First quarter | $31 00 | | $31 00 |
| Second quarter | 50 09 | $12 50 (25c. for old paper) | 62 84 |
| Third quarter | 47 75 | 7 25 | 55 00 |
| Fourth quarter | 30 43 | 18 75 | 49 18 |
| | $159 27 | $38 50 | $198 02 |

The receipts for these amounts have been submitted with previous reports.

The Reading Room still holds its place in public favor, and will be a decidedly attractive and useful feature of the new library building.

All of which is most respectfully submitted,

ALMIRA L. HAYWARD,
*Librarian.*

# REPORT

OF THE

# JOINT STANDING COMMITTEE ON PUBLIC PROPERTY.

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UNDER authority given from time to time during the year, by the City Council, and in accordance with appropriations made therefor, this committee has had charge of improvements and repairs in the year 1887, as follows: —

### New Buildings.

1. Almshouse building: School house, workshop and storage rooms, on Almshouse grounds.
2. Engine House: Hook-and-Ladder and Engine House on Portland street.
3. School House: Enlargement of Putnam School house, Fourth street.
4. School House: Completion of improvements at Webster School house, Upton street.

### Improvements and Repairs.

1. Harvard School house: Extensive repairs inside, painting, etc.
2. Austin School house: Completion of water-closets.
3. Washington School house: Steam-heating apparatus put in.
4. Latin School house: Extensive work upon drain.

Various other matters involving considerable expenditure, have been referred to the committee, for action or report thereon. Among these was the question as to the expediency of providing suitable bathing-houses on Charles River. This subject was considered and a plan and estimate obtained of the cost of bathing-houses, such as are provided by the City of

Boston. This cost was ascertained to be about $2,000 each. No further action was taken in the matter.

The committee also endeavored to find a location for a shooting-range to be used for target practice by the military companies of this city. The attempt to find such a location in this vicinity, has thus far been unsuccessful. The shooting-range now used by these companies is in the ledge on the Almshouse grounds, and is very inconveniently situated.

At about the beginning of the year, under instructions from the City Council, an inquiry and report was made by the committee in reference to various encroachments maintained upon land belonging to the city. The subject was thoroughly investigated and a report made giving in detail a list of the encroachments, some of which have been maintained, apparently, for many years. The report of the committee was referred to the City Solicitor, who has since submitted a full report as to the legal aspects of the matter, with suggestions as to the proper action to be taken. This latter report was referred to the committee, and is still in its files, with the probability existing that the matter will be referred to the next City Council.

The advice and assistance of the Superintendent of Public Buildings, have constantly been in requisition throughout the year, in carrying on the work of the committee. Such supplies as have been required for the various city buildings, have been furnished upon orders drawn by individual members of the committee. All repairs have been under the direct charge of the Superintendent.

Following is a statement of the expenditures under various heads of appropriations, approved by this committee to Dec. 1, 1887, and by the committee of the previous year, for the month of December 1886, it being the period included in the financial year of 1887.

**Heads of Appropriations.**

| | | |
|---|---|---|
| City Buildings (care and repairs):— | | |
| City Hall (including fuel) . . . . . | $4,146 83 | |
| City Building, Brattle Sq., including fuel . . | 3,676 43 | |
| City Building, Central Sq., including fuel . . | 2,624 44 | |
| Other buildings, gas, etc. . . . . | 48 79 | |
| Amount carried forward . . . . . | | $10,496 49 |

| | | |
|---|---|---|
| Amount brought farward | | $10,496 49 |
| Fire Department:— | | |
| Engine House No. 1 | $7 50 | |
| Engine House No. 2 | 266 75 | |
| Engine House No. 3 | 82 64 | |
| Engine House No. 4 | 240 62 | |
| Engine House No. 5 | 363 43 | |
| Hook and Ladder House No. 1 | 58 77 | |
| Hook and Ladder House No. 2 | 7 65 | |
| Chemical House | 14 15 | |
| | | $1,041 51 |
| Fire Department:—New Engine House | | $10,045 52 |
| Incidental expenses:— | | |
| Care of public clocks | $170 50 | |
| Ringing bells at 12 noon and 9 P. M. | 25 00 | |
| Election expenses, fitting up polling-places, and rent of ward rooms | 672 84 | |
| New flag-staff and repairs on fence, Ward 1, little common | 304 02 | |
| Repairs on rifle range | 51 77 | |
| Plans of new out-building at the almshouse | 120 00 | |
| Repairs on Engine House, and Police Station on North Avenue | 55 20 | |
| Shovelling snow from sidewalks in front of City lands and public squares | 82 20 | |
| Fence on Mill Pond Land line, Daye Court, one half cost | 140 80 | |
| Boarding and shoeing horse, Superintendent Public Buildings | 454 49 | |
| Care of ward rooms | 123 30 | |
| Care of fires, Police Station and Engine House Ward 3 | 40 00 | |
| Building fence and grading land in rear of City Hall | 103 56 | |
| Miscellaneous | 158 07 | |
| | | $2,501 75 |
| Police Department, repairs and furnishing stations:— | | |
| Station 1 | $15 00 | |
| Station 2 | 170 20 | |
| Station 5 | 5 25 | |
| | | $190 45 |
| School houses (care and repairs):— | | |
| Fuel and weighing (approved by Committee on Fuel) | $7,813 98 | |
| Gas | 357 56 | |
| Janitors | 13,011 48 | |
| Repairs and furnishing | 15,192 40 | |
| Supplies and sundry expenses | 2,530 16 | |
| | | $38,905 58 |
| Amount carried forward | | $63,181 30 |

| | | |
|---|---|---|
| Amount brought forward . . . . . | | $63,181 30 |
| School houses, (new and furniture): — | | |
| Latin school house, plans, etc. . . . . | $75 00 | |
| Putnam school house . . . . . | 9,229 74 | |
| Webster school house, completion . . . . | 1,430 64 | |
| Evening schools, janitors, etc. . . . . | 168 84 | |
| Evening drawing schools, janitors, etc. . . . . | 46 89 | |
| | | $10,951 11 |
| | | $74,132 41 |
| Less items for fuel (approved by the Committee on fuel): — | | |
| City Hall . . . . . | $239 43 | |
| City Building, Brattle Square . . . . . | 716 99 | |
| City Building, Central Square . . . . . | 447 93 | |
| School-houses . . . . . | 7,813 98 | |
| | | $9,218 33 |
| Leaving amount of bills approved by this committee | | $64,914 08 |

The items for fuel are given in the foregoing, in order to show the total cost of maintenance of the several buildings, but are deducted from the aggregate to show the amount of bills approved by this Committee. All fuel is contracted for by the Committee on Fuel, and the bills therefor are approved by that Committee.

| | |
|---|---|
| The amount of bills approved by the Committee on Public Property in 1886 was . . . . . | 81,843 32 |
| Bills approved in 1887 was . . . . . | 65,914 08 |
| Decrease in 1887 . . . . . | $15,929 24 |

Three new school houses were completed in 1886, while in 1887 only one was begun and partly completed.

The following is an analysis of expenditures under the several heads of appropriations:

### City Buildings.

Under this head are included the City Hall, and the city buildings in Brattle and Central squares, the accounts being kept separately with each building.

### City Hall.

The expenditures in and upon the City Hall building in the year 1887 were as follows: —

| | | |
|---|---|---|
| For Fuel | $239 43 | |
| Gas | 463 99 | |
| Janitor | 1,202 46 | |
| Extra cleaning | 542 91 | |
| Repairs, heating apparatus | 23 56 | |
| General repairs | 1,198 14 | |
| Furnishing and repairs | 430 65 | |
| Miscellaneous | 45 69 | |
| | | $4,146 83 |
| In 1886 the cost was | | 3,845 95 |
| Increase | | $300 88 |

The usual repairs in and upon this building, rendered necessary by its constant and severe use, and the character of the structure, have been made under direction of this committee. The exterior wood-work has been painted at a cost of $159, and in the interior, important and much needed improvements have been made in the offices of the Auditor, City Clerk and City Treasurer.

### City Building (Brattle Square).

The cost of maintenance of the City Building, Brattle Square, in 1887, was as follows: —

| | | |
|---|---|---|
| For Fuel | $716 99 | |
| Gas | 641 70 | |
| Janitor | 1,251 91 | |
| General Repairs | 928 40 | |
| Miscellaneous furnishings | 137 43 | |
| Total | | $3,676 43 |
| The cost in 1886 was | | 3,623 82 |
| Increase in 1887 | | $52 61 |

Several important changes have been made in rooms in this building to meet the increasing public need for their use. Electric lighting facilities have been placed in the tower clock. An imperfection in the drainage of the building, having apparently existed for several years past, the question as to the remedy for the same has been considered from time to time by committees of past years, and also by this committee. An attempt has been made to obtain the original plans of the building used in its construction. These are in the possession of the architect, who is now a resi-

dent of California. He claims these plans as his property and will not dispose of them to the city for less than the sum of $350. It is thought that a knowledge of the location of the drains of the building, which may appear upon the plan, would render it easy to remove the existing evil. The matter will undoubtedly receive attention early in the coming year, and some remedy for the alleged difficulty will be devised.

Nearly all of this building is used for city purposes, a portion being let and revenue therefrom received as follows:—

| | |
|---|---|
| Armory, Co. B. 5th Regt.. M. V. M., rental | $400 00 |
| District Court, (Third Middlesex) | 350 00 |

**City Building (Central Square).**

The cost of Central Square building in 1887, was as follows:—

| | | |
|---|---|---|
| For Fuel | $447 93 | |
| Gas | 260 69 | |
| Janitor | 1,202 46 | |
| General repairs and furnishing | 710 93 | |
| Miscellaneous | 2 43 | |
| | | $2,624 44 |
| The cost in 1886, was | | $3,716 83 |
| The cost in 1887, was | | 2,624 44 |
| Decrease | | $1,092 39 |

The cost of the care and repairs upon this building in the year 1887, was about the same as in 1885, and in other years during which no extraordinary expense in fitting up was incurred. In 1886, a large outlay was made upon the Armory. The decrease in the expense this year, is nearly equal to the amount expended upon the Armory.

The amount expended for care and repairs of the several city buildings:

| | | |
|---|---|---|
| In 1886, was | $11,217 88 | |
| In 1887, it was | 10,496 49 | |
| Decrease in 1887 | | $721 39 |
| The Amount appropriated was | 10,500 00 | |
| Surplus revenue added | 53 74 | |
| Total | | $10,553 74 |
| Amount expended | | 10,496 49 |
| Balance unexpended. | | $57 25 |

### Fire Department.

Extensive repairs have been made upon Engine Houses 2, 4, and 5, and slighter expenditures upon the other buildings, the whole outlay being a little in excess of that of the previous year. Comparative figures are given below: —

| | |
|---|---|
| Expended in 1887 | $1,041 51 |
| Expended in 1886 | 954 59 |
| Increase in 1887 | $86 92 |

These expenditures are charged to an appropriation (Fire Department) not under the control of this committee, and all repairs are therefore made with the concurrence of the committee on Fire Department.

### New Building for Hook and Ladder Truck No. 2.

Early in the year, the Committee on Fire Department was authorized to contract for the erection of an Engine and Truck House on Portland street. A lot of land belonging to the city, bounded by Portland street and the northerly line of Thorndike street, extended and produced, was selected as a site for the new building. The lot has a frontage on Portland street of sixty feet, and extends southerly to the line of the Boston and Albany Branch Railroad. Total area, 11,931 square feet.

Proposals were received by the Committee on Fire Department, and an award made for the erection of a brick building for the purpose named. The contract was awarded to H. Coon & Co., for the sum of $14,541. By a subsequent order of the City Council, this committee was instructed to take charge of the construction of this building, and under the direction of this committee, the Superintendent of Public Buildings has superintended the progress of the work. It is expected that the building will be completed for occupancy on or before the beginning of the new year.

| | |
|---|---|
| The amount originally appropriated for this purpose, was | $12,000 00 |
| Additional appropriation | 5,600 00 |
| Total | $17,600 00 |
| Amount thus far expended | 10,045 52 |
| Balance unexpended | 7,554 48 |

The total cost of this building when completed, as far as known, will be as follows: —

| | |
|---|---|
| H. Coon & Co., contract for building | $14,541 00 |
| Walworth Construction and Mfg. Co., heating apparatus | 882 00 |
| Charles Linnehan, grading the land | 180 00 |
| Drainage | 478 92 |
| Painting signs | 32 50 |
| James Fogerty, architect | 425 00 |
| Water supply | 10 10 |
| Sliding pole | 110 00 |
| Total | $16,659 52 |

Other small items may slightly increase the amount, but the total cost will probably be within the appropriation.

### Incidental Expenses.

The items under this head, approved by this committee in 1887, are considerably less in the aggregate than in the year previous. Among these are the cost of a new flag-staff on the little common in Ward One, and the plans for a new brick building on the Almshouse grounds, to replace a burned building. This committee was directed to take charge of this matter, and the order further provided that the expense should be charged to the appropriation for Incidental Expenses. The contract for the building was awarded to M. N. Stearns for $4,885.

The total sum authorized to be expended for this purpose was $5,500, and it is believed that the cost cannot reach this sum. The payment for the work on this contract, will be made from the next year's appropriations, but will be taken from funds reserved from the receipts of the present year for such purpose.

### Police.

The expenditures upon the Police Stations have been slight. The only outlay of importance made by the committee was upon the rooms in Station Two, where needed improvements were made at a cost of $170.20.

### School Houses.

The appropriations under this head in the year 1887, were as follows: —

| | Original Amounts. | As afterwards Changed. |
|---|---|---|
| School Houses (care and repairs) | $37,500 00 | $39,027 92 |
| Webster School House (completion) | 1,500 00 | 1,430 64 |
| New and Furniture | 24,000 00 | 23,810 00 |
| Totals | $63,000 00 | $64,268 56 |

Provision was made for extensive additions to the Latin School house, and the committee was authorized to expend $2,500 for the purpose. Proposals for the work were called for in accordance with plans, but after a conference with the School Committee the project was abandoned, and an order passed by the City Council, directing the committee to take no further action in the matter.

A lot of land adjoining the Putnam School house lot on Fourth street, was purchased early in the year for the sum of $4,000. The lot contains 1,900 square feet, and was obtained for the purpose of enlarging the before-mentioned school house. Authority was given to this committee to contract for the erection of the building, and the contract was subsequently awarded to D. Sullivan & Son for $13,145.

The original estimate of the committee, of the cost of land and building for this enlargement, was $16,000, and the appropriation for School Houses (New and Furniture) included this sum. The total cost will, however, exceed this last named sum, and a further appropriation has been made to meet this excess.

The total cost of this improvement will be as follows: —

| | |
|---|---|
| For Land | $4,000 00 |
| Examining title, serving notices, etc. | 51 50 |
| Contract for building | 13,145 00 |
| Extra work in building (stairs) | 250 00 |
| Extra work, grading yard. | 225 00 |
| Other grading and teaming | 54 99 |
| Water supply | 33 25 |
| James Fogerty, plans | 390 00 |
| Total | $18,149 74 |
| The amount appropriated for school houses (new and furniture), to which the foregoing items were to be charged, was | $24,000 00 |
| Less amount transferred | 190 00 |
| Amount carried forward | $23,810 00 |

**Amount Expended.**

| | | |
|---|---|---|
| Amount brought forward | | $23,810 00 |
| Land for Putnam school house | $4,000 00 | |
| Payments on building contract | 4,700 00 | |
| Other expenses | 529 74 | |
| Plans for enlarging Latin school house | 75 00 | |
| | | $9,304 74 |
| Balance unexpended | | $14,505 26 |

This entire balance has been reserved and set aside in the city treasury for the payment of the amount due on the contract of D. Sullivan & Son, and for land purchased on Linnæan street, as follows:—

| | |
|---|---|
| Balance due D. Sullivan & Son. | $8,920 00 |
| Land on Linnæan | 6,700 00 |
| Total | $15,620 00 |
| Less unexpended balance of appropriation 1887 | 14,505 26 |
| Additional amount to be appropriated in 1888 | $1,114 74 |

The work on the Webster school house enlargement, which was begun in 1885, was still uncompleted at the end of the year 1886. A separate appropriation for the completion of the improvements upon and around this building was made in 1887.

| | |
|---|---|
| Amount of appropriation | $1,500 00 |

**Expended.**

| | | |
|---|---|---|
| Wooden fence | $109 53 | |
| Iron fence | 276 00 | |
| Paving yard | 475 00 | |
| Gas fixture | 156 71 | |
| Settees | 413 40 | |
| | | $1,430 64 |
| Balance unexpended, transferred | | $69.36 |

This building contains seven furnaces, which consumed on an average 125 tons of coal annually. It is believed by the Superintendent of Public Buildings, that this large expense for fuel can be materially lessened by substituting steam-heating apparatus for these furnaces, and putting the latter to use in smaller buildings. Serious complaint has been made from time to time during the year, of the sanitary condition of the Webster school

house (old portion). About eight hundred children are in attendance at this school. A proper regard for their health and comfort, requires that immediate attention be given to the ventilation and plumbing of this building.

| | |
|---|---|
| The appropriation for school houses (care and repairs) as recommended by the Committee on Finance, and subsequently adopted was | $37,500 00 |
| Additional amount transferred | 1,527 92 |
| Making the appropriation stand at | $39,027 92 |

**Expenditures.**

| | 1887. | 1886. |
|---|---|---|
| Blackboards | $246 66 | $934 64 |
| Fuel | 7,793 08 | 6,878 99 |
| Furniture and repairs | 10,154 36 | 770 87 |
| *Gas | 785 25 | 276 04 |
| Gravel, grading and paving | 223 12 | 24 00 |
| Hardware and tools | 212 35 | 596 91 |
| Heating apparatus and repairs | 5,549 03 | 1,997 91 |
| Janitors and extra labor | 13,011 48 | 11,865 33 |
| Repairs of buildings, fences and lumber | 159 06 | 5,646 31 |
| Supplies, miscellaneous | 474 28 | 837 94 |
| Sundry expenses | 296 61 | 399 19 |
| Water | | 704 45 |
| | $38,905 58 | $30,932 58 |

The cost of repairs and supplies in all the school houses, exclusive of the items of fuel, gas, water and janitors, was $17,722.56, and subject to the deduction above mentioned.

| | | |
|---|---|---|
| For school houses, care and repairs, there was appropriated the sum of | 39,027 92 | |
| Amount expended | 38,905 58 | |
| Balance unexpended | | $122 34 |
| The amount expended in 1887 was | $38,905 58 | |
| The amount expended in 1886 was | 30,932 58 | |
| Increase | | $7,973 00 |

It will be observed that the expenditure upon the various school houses, was largely in excess of the cost of these buildings in the year 1886. The plumbing at the Allston school house amounting to $2,284.00 was contracted for and begun in 1886, the work being completed and paid for in this year.

* This item for the year 1887, appears in the accounts at a sum considerably in excess of the amount actually paid for gas-lighting. One bill amounting to $357.56 was entered twice, and was subsequently credited back as revenue. This being deducted from the amount given herein, $785.25, leaves the sum actually paid for gas. $427.69.

Steam-heating apparatus was put into the Washington school house with necessary arrangements for direct ventilation, the whole costing $3,215. The interior of the Harvard school house was renovated at a cost of $1,475.25. Improved drainage was constructed at the Latin school house, for which the sum of $994.94 was expended. Several of the wooden school houses were painted upon the outside. Details of all this work and other minor outlays, may be found in the report of the superintendent of Public Buildings.

In the last report of the Superintendent of Public Buildings attention was called to the work required during the year 1887.

The cost of maintenance of each school house is shown in the following tables, the same being classified under the several headings. The item of gas is included under the general head of furniture and supplies.

**Maintenance of School Houses.**

| Names. | Fuel. | Furniture and Supplies. | General Repairs. | Janitor. | Total. |
|---|---|---|---|---|---|
| English High | $319 70 | $429 45 | $247 50 | $872 05 | $1,868 70 |
| Latin | 374 19 | 36 48 | 1,085 54 | 513 12 | 2,009 33 |
| Allston Grammar | 312 63 | 158 90 | 2,732 36 | 504 23 | 3,708 12 |
| Corlett Grammar | 77 39 | 12 30 | 251 91 | 226 66 | 568 26 |
| Harvard Grammar | 361 14 | 507 73 | 1,475 25 | 855 85 | 3,200 25 |
| Putnam Grammar | 325 35 | 81 01 | 23 79 | 334 01 | 764 16 |
| Shepard Grammar | 258 05 | 3 80 | 52 22 | 504 12 | 818 19 |
| Thorndike Grammar | 408 00 | 71 58 | 397 28 | 503 99 | 1,380 85 |
| Washington Grammar | 298 40 | 220 31 | 3,558 88 | 547 49 | 4,625 08 |
| Webster Grammar | 830 63 | 65 92 | 206 12 | 818 00 | 1,920 67 |
| Wellington Grammar | 312 11 | 29 90 | 212 56 | 349 67 | 904 24 |
| Agassiz Primary | 342 46 | 30 56 | 158 32 | 504 12 | 1,035 46 |
| Boardman Primary | 232 34 | 2 66 | 170 65 | 234 68 | 640 33 |
| Bridge Primary | 37 20 | 75 | 217 08 | 100 00 | 355 03 |
| Cushing Primary | 81 69 | 14 70 | 232 71 | 243 15 | 572 25 |
| Dana Primary | 126 63 | 24 68 | 135 23 | 226 68 | 513 22 |
| Dunster Primary | 34 61 | 14 65 | 321 28 | 314 78 | 685 32 |
| Felton Primary | 129 75 | 12 22 | 86 58 | 238 63 | 467 18 |
| Gannett Primary (old building) | 110 13 | 3 00 | 297 73 | 349 67 | 760 73 |
| Gannett Primary(new, Jefferson St.) | 130 95 | 13 31 | 552 75 | 364 42 | 1,061 43 |
| Gore | 371 69 | 40 80 | 147 94 | 508 11 | 1,068 54 |
| Holmes | 188 10 | 5 91 | 57 21 | 314 01 | 565 23 |
| Lassell | 153 30 | ..... | 501 58 | 314 36 | 969 24 |
| Lowell | 224 55 | 5 24 | 42 37 | 252 06 | 524 22 |
| Mason | 77 85 | 1 98 | 35 24 | 226 63 | 341 70 |
| Otis | 234 90 | 29 07 | 509 76 | 271 70 | 1,045 43 |
| Quincy | 127 95 | 2 91 | 80 04 | 252 06 | 462 96 |
| Reed | 155 09 | .... | 44 30 | 305 86 | 505 25 |
| Riverside | 175 05 | 32 84 | 41 57 | 324 86 | 574 32 |
| Sargent | 128 55 | 7 23 | 97 15 | 201 52 | 434 45 |
| Stearns | 103 80 | 26 80 | 155 39 | 218 27 | 504 26 |
| Tarbell | 205 80 | 50 53 | 163 04 | 305 11 | 724 48 |
| Willard | 305 55 | 163 04 | 541 54 | 506 12 | 1,516 25 |
| Wyman | 195 31 | 10 25 | 359 53 | 405 49 | 970 58 |
| Superintendent's office | ..... | 70 13 | ..... | ..... | 70 13 |
| All schools (Weighing Coal) | 42 06 | 727 68 | ..... | ..... | 769 74 |
| Totals | $7,793 38 | $2,908 32 | $15,192 40 | $13,011 48 | $38,905 58 |

### City Lands and Surrendered Estates.

The matter of the appraisal and sale of the unimproved city lands has each year, for several years past, been committed, as heretofore, to a joint special committee consisting of the Mayor, President of the Common Council and members of the Committee on Public Property.

The special committee above mentioned was authorized to sell such lands as had not previously been reserved for city uses.

The sales made in 1887 have been large, and include all the land on Sidney Street, heretofore owned by the city, the land on Harvard Street, and a part of the City Wharf on Main Street.

A few lots from the Almshouse lands have been sold at fair prices.

### Mill-Pond District.

The territory remains the same as stated in the last year's report. The work of filling the upper basin of the old Mill-Pond has been completed by the Street Department. A very serious complaint was made during the summer, of the foul odors arising from stagnant water remaining in the lower basin. The matter was placed in charge of the City Engineer, who caused a sluice-way to be opened to the river, and a tide-gate to be constructed. The evil was thus speedily remedied, and no further complaints have arisen in relation to the alleged nuisance.

The Committee on Roads and Bridges was authorized to build a wharf, above the Brighton Bridge, and contracted for the building of a sea-wall at the river end of this basin. Considerable progress has been made in filling the territory, and about one hundred feet of the wall has been built, or about one-half of the length contracted for. The committee above-named will have charge of this wharf, as a landing-place for supplies for the street department.

The Mill-Pond Lands are not now in the list of salable lands. Applications have been made for the use of this territory for the purpose of a play-ground, and a desire has been expressed by residents in the vicinity that the entire area north of Putnam Avenue, be converted into a public common. This committee has no recommendation to make upon this subject.

### Tax-Title Lands.

There has been no change in reference to this kind of property during the year.

### Janitors.

There are twenty-four janitors of school houses and three janitors of city buildings employed under the direction of the Committee on Public Property. The duties of the janitors of the larger school houses, as well as those of the city buildings, require undivided attention. Of the janitors of school houses, there are fifteen who have the charge of one building each; eight have charge of two each, and one has charge of three buildings.

The committee also employs the janitors of the Ward Rooms of Wards Three and Five, during the season of the evening schools, when the rooms are used. Although these employés are appointed by the Committee on Public Property, and by that committee are held responsible for the right performance of their duties, they are directly under the authority of the principals of the schools, and are expected to obey their orders.

During the past year special rules have been prepared for the guidance of the janitors, and a copy of these rules placed in the hands of each janitor. It is the earnest desire of this committee that all cases of remissness of duty on the part of a janitor should be reported immediately.

Blank reports of the manner in which the janitors of school houses perform their duties, have been prepared by the superintendent of schools for use by the respective principals of schools.

The committee has urged that these reports be submitted each month at its regular meetings, and has always been desirous of coöperating with the school-committee in all efforts to promote the health and comfort of the teachers and children who occupy our school houses.

## CITY PROPERTY.

The following is a schedule of the property owned by the city at the close of the year 1887, special note being made of such as is not under the care of this committee:

### Almshouse Buildings.

At foot of Tannery street, Ward 5, with land as follows:

| | | |
|---|---|---|
| In Cambridge | 14.242 | Acres |
| In Somerville | 12.670 | " |
| In Arlington | .100 | " |
| | $27.\frac{12}{1000}$ | Acres. |

The area of the land in Somerville does not include the new streets laid out therein by this city. There is also a stone ledge situated on the Almshouse land in Somerville. With the exception of the land in Somerville, which is mentioned elsewhere in this schedule under *City Lands* (*Salable*), all this property is in the care of the Overseers of the Poor.

### Cemeteries.

*Cambridge Cemetery.* Foot of Coolidge avenue, containing $40\frac{8129}{10000}$ acres of land. Also, additional territory adjoining, on southeasterly side, purchased in 1885, containing $18\frac{765}{1000}$ acres, upland, and $6\frac{29}{100}$ acres marsh. Total $25\frac{55}{1000}$ acres. This land was formerly known as the Winchester Estate, and has been annexed to the City of Cambridge by Legislative enactment. The total area of the Cemetery lands, inclusive of this additional territory, is $65\frac{8679}{10000}$ acres. (In charge of Board of Commissioners of Cambridge Cemetery. Included in their report).

*Burial-Ground.* Garden Street, junction of North Avenue, containing 85,858 square feet of land. (Recently placed in charge of the Cemetery Commissioners.)

### City Buildings.

*Ward One Building*, Brattle Square, and land, 16,153 feet.

*Central Square Building*, junction Western Avenue and Green Street, and 13,028 feet of land.

*City Hall*, Main Street, corner Pleasant Street, and 12,881 feet of land.

*City Stables*, Norfolk, Hampshire and Tremont Streets, and 72,661 feet of land. (In charge of Committee on Roads and Bridges).

*Police Station*, Norfolk Street, on City Stable lot.

### City Lands (Salable).

*Lot* on Portland Street, east side, north of Engine and Hook-and-Ladder House, containing 18,011 square feet.

*Lot* on Portland Street, east side, south of Engine, and Hook-and-Ladder House, south of the line of Thorndike Street extended, containing 31,643.1 square feet.

*Land* on the south side of Broadway, West Somerville, part of Cambridge Almshouse land, divided into lots according to city plan, dated April 10, 1884, as follows:

| | |
|---|---|
| On *Endicott Avenue*, so-called, northwest side. Lots 51, 60, 67, 76, 83, 92, 99, 108, 124 | 45,000 Feet. |
| On *Farragut Avenue*, so-called, southwest side. Lots 68, 75, 84, 91, 100, 107, 116, 123 | 40,000 Feet. |
| On *Farragut Avenue*, northeast side. Lots 90, 101, 106, 117, 122 | 25,000 Feet. |
| On *Garrison Avenue*, so-called, southwest side. Lots, 54, 57, 70, 73, 86, 89, 102, 105, 118, 121 | 50,000 Feet. |
| On *Garrison Avenue*, northeast side. Lots 56, 71, 72, 87, 88, 103, 104, 119, 120 | 45,000 Feet. |
| Total | 205,000 Feet. |

(These lots are included in the area of Almshouse lands.)

*Lot* on Cambridge Street, north side, between Marion and Harding Streets, containing about 5,000 feet.

### City Lands (Reserved for Use).

*Land* on Norfolk Street, opposite city stable-yard, purchased in 1887, containing 39,600 square feet (in use by the Street Department).

*Lot* on Pilgrim Street, north side, containing an area of 23,700 feet, with buildings thereon belonging to the Sewer Department, the land being in use by that department.

*Lot* on Auburn Street, south side, between Brookline and Sidney Streets, with buildings thereon belonging to the Cambridge Water Works. This lot is used by the Water Works Department and has an area of 33,300 square feet.

### City Flats.

*Flats*, opposite City Wharf, Main Street, south side, opposite junction with Harvard Street; in all, 162,379 feet.

## Commons and Public Squares.

*Cambridge Common.* Garden Street, North Avenue, and Waterhouse Street. Area, 370,785 feet.

*Public Square.* Between Waterhouse Street and North Avenue. Area, 13,180$\frac{7}{10}$ feet.

*Arsenal Square.* Garden and Chauncey Streets and Concord Avenue. Area, 3,189 feet.

*Public Square.* Between Waterhouse Street and Garden Street. Contents, 363 feet.

*Public Square.* Between Holmes Place and Cambridge Street. Contents, 20,956 feet.

*Public Square.* North Avenue, corner of Kirkland Street, on south corner. Contents, 23,074 feet.

*Public Square.* North Avenue, corner of Kirkland Street, on north corner. Contents 33,357 feet.

*Public Enclosure.* Junction of Arrow and Main Streets, containing 872 feet.

*Broadway Park.* Broadway, corner of Norfolk Street. Contents, 107,181 feet.

*Fort Washington.* Waverly Street. Contents, 42,123 feet.

*Public Square.* Junction of Pleasant and River Streets. Contents, 1,569 feet.

*Hastings Square.* Brookline, Chestnut and Henry Streets. Area, 29,999 feet.

*Dana Square.* Lake, Magazine, Lawrence and Niagara Streets. Area, 33,531 feet.

*Winthrop Square.* Boylston, Winthrop and Mount Auburn Streets. Area, 10,236 feet.

## Engine-Houses.

*House No.* 1, Eliot Square, corner Mount Auburn Street, included with Ward 1 Building.

*House No.* 2, Main Street, near Winsor, and land, 3,150 feet.

*House No.* 3, Gore and Fourth Streets, and land, 4,220 feet.

*House No.* 4, North Avenue, near corner Russell Street, and land, 6,315 feet.

*House No.* 5, Hampshire Street, corner Inman and land, 6,000 feet.

*House, Hook and Ladder No.* 2 and Engine House, Portland

Street, corner of Thorndike Street, extended, and 11,931 feet of land.

*House (old)*, formerly Hook and Ladder 2, Cambridge Street, corner of Portland. (This is a building of doubtful value, and is situated on land recently sold by the city. By a special agreement it may remain as at present located until it is deemed expedient to remove the building.)

### Gravel Pit.

*Gravel Pit*, in rear of Concord Avenue, southerly side, near Adams Street, containing 277,017 feet. (In charge of Committee on Roads and Bridges.)

### Mill-Pond Property.

*Old Mill-site and Basins.* River Street, near Brighton Bridge, and upper and lower basins on River Street, Putnam and Western Avenues, comprising an area of 305,690 feet, or about 7 acres.

The city is now building a wharf on the north-east bank of Charles River, which will ultimately include the entire area of the Mill-Pond basin between Blackstone Street and the river. This work is in charge of the Street Department, which will use the wharf when completed.

### School Houses and School House Lands.

*Allston*, Boardman Street, 15,193 feet of land.

*Agassiz*, Oxford Street, corner Sacramento Street, 19,689 feet of land.

*Boardman*, Winsor Street, corner School Street, 10,018 feet of land.

*Bridge*, Pioneer street, Lower Port, 4,646 feet of land.

*Corlett*, Holworthy Street, and 10,000 feet of land.

*Cushing*, Cushing Street, nearly opposite Locust Street, 14,788 feet of land.

*Dana*, Centre Street, and 14,317 feet of land.

*Dunster*, Concord Avenue, near Sparks Street, and 10,000 feet of land.

*Felton*, Amory Street corner Summer Street, and 15,090 feet of land.

*Gore*, Gore Street, between Third and Fourth Streets, and 9,900 feet of land.

*Gannett*, (old) Columbia Street, between Lincoln and Cambridge Streets, and 8,802$\frac{7}{10}$ feet of land.

*Gannett*, (new) Jefferson Street, and 14,934 feet of land.

*Harvard*, Broadway, corner Inman street, and 20,494 feet of land.

*High School.* Fayette Street, Antrim Street, and Broadway, and 37,828 feet of land.

*Holmes*, Hilliard Street, and 11,182 feet of land.

*Lassell*, Charles Street, near Sixth, and 10,000 feet of land.

*Latin*, Lee Street, near Harvard, and 10,000 feet of land.

*Lowell*, Lowell Street, near Mount Auburn Street, and 12,033 feet of land.

*Mason*, Front Street, corner Jennings Court, and 10,000 feet of land.

*Otis*, Otis Street, between Fifth and Sixth Streets and 8,270 feet of land.

*Putnam*, Otis Street, corner Fourth Street, and 11,900 feet of land. (Including additional land recently purchased.)

*Quincy*, Mason Street, corner James Street, and 8,469$\frac{3}{10}$ feet of land.

*Reed*, Reed Street, Ward 5, and 12,000 feet of land.

*Riverside*, Putnam Avenue, Ward 1, and 11,198 feet of land.

*Sargent*, Broadway, corner Winsor Street, and 9,995 feet of land.

*Shepard*, North Avenue, near Russell Street, and 14,755 feet of land.

*Stearns*, Harvard Street, near Prospect Street, and 10,050 feet of land.

*Tarbell*, Grigg, Howard and Magee Streets, and 19,500 feet of land.

*Thorndike*, Thorndike Street, corner Sixth Street, and 10,027 feet of land.

*Washington*, Brattle Street, corner Farwell Place, and 14,951$\frac{1}{2}$ feet of land.

*Webster*, Upton Street, and 25,839 feet of land.

*Wellington*, Columbia, corner of Lincoln Street, and 18,870 feet of land.

*Willard*, Lake, Lawrence and Niagara Streets, and 20,079 feet of land.

*Wyman*, Spruce Street, corner Groveland Street, and 14,346 $\frac{8}{10}$ feet of land.

*School House Lot*, corner of Linnæan and Avon Street, Ward 5, containing 21,813 square feet.

### Surrendered Estates.

These estates were surrendered to the city under the provisions of the statutes relating to low-land filling.

The following are all that remain unsold.

This list gives by whom surrendered and location of property.

#### CAMBRIDGE STREET DISTRICT.

*Nourse, Susan M.* Porter and Jefferson Streets. Lot of land, 3,578 feet, Porter Street.

#### WASHINGTON STREET DISTRICT, SOUTH DOCK, AND SOUTH CANAL.

*Bent Heirs.* Dock and Sixth Streets. West lot containing 5,959 feet.

### Tax-Title Estates (Salable).

The following described estates were conveyed to the city by persons who had purchased them at auction sales by the Collector of Taxes, and the city has taken legal possession of the same.

*Lot* on Broadway, west corner of Sixth Street, containing 17,517 feet.

*Lot* on Second Street, east of Conlan's Court, containing 26,400 feet.

*Lot* on Hunting Street, west side, adjoining land late of Melley, containing 2,709 feet.

*Lot* on Spruce Street, near railroad, adjoining land of McSweeny ; area undetermined.

*Land* on Walden Street, southeast of land of Darling, southwest of land formerly of Saunders ; area 16,635 square feet.

WHARVES AND LANDINGS.

*Public Landing*, foot of Bath Street; area unknown. *Gerry's Landing*, so called, south of Mount Auburn Street; area unknown. Each has a frontage of 30 feet on the river.

*City Wharf*, Main Street, opposite Harvard street, 9,400 feet.

**Water Works Property.**

*Kingsley Park*, opposite Lexington Avenue, between the Fitchburg Railroad and Fresh Pond, including the old Engine House lot; containing 300,000 square feet.

*Tudor Park.* Between Fresh Pond drive and Watertown Branch Railroad, containing 57,312 feet.

*Lands Bordering on Fresh Pond*, partly taken, and partly acquired by purchase; containing an area of 2,707,308 square feet.

*Lands Bordering on Little Pond.* Area unknown.

*New Engine House*, opposite foot of Lexington Avenue, and 90,414 feet of land.

*Reservoir*, Reservoir Street, corner High Street, and 86,920 feet of land. All the Water Works property is in charge of the Cambridge Water Board.

**Recapitulation of Areas.**

| Kind of Property. | Square feet. | Acres. |
|---|---|---|
| Almshouse lands, about | 1,176,642.72 | 27.012 |
| Cambridge Cemetery (original) | 1,778,511.24 | 40.829 |
| Cambridge Cemetery (enlargement) | 1,091,395.8 | 25.55 |
| Burial Ground, near Harvard Square | 85,858 | 1.97 |
| Occupied by City Buildings | 114,723 | |
| City Lands (salable) | 54,654 | |
| City Lands, occupied by Sewer Department | 23,700 | |
| City Lands, occupied by Water Works | 33,300 | |
| City Flats | 162,379 | 3.73 |
| Commons and Public Squares | 699,015.7 | 16.047 |
| Occupied by Engine Houses | 31,616 | |
| Gravel Pit on Concord Avenue | 277,017 | 6.359 |
| Mill Pond Lands, about | 305,690 | 7.018 |
| Occupied by School houses | 469,265 | |
| School House Lot, Avon Street | 21,813 | |
| Surrendered Estates, lands:— | | |
| | Square ft. | |
| Cambridge Street District | 3,578 | |
| Washington Street District | 5,959 | |
| Total in all the districts | 9,537 | |

| Kind of Property. | Square feet. | Acres. |
|---|---|---|
| Tax-Title Estates, four estates | 63,261 | |
| Water Works Lands at Fresh Pond | 3,241,954 | 74.425 |
| City Wharf, Main Street | 9,400 | |
| Total, about | 9,649,732.46 | =221.52 |

**Schedule**

Of salable city lands, surrendered estates, and tax-title lands, included elsewhere in this report, with their appraisal: —

| | |
|---|---|
| Lot on Portland Street, north of Engine House, 18,011 feet | $4,502 75 |
| Lot on Portland Street, south of Engine House, 31,643 feet | 7.910 75 |
| City Wharf, Main Street, Lower Port, 9,400 feet | 7,000 00 |
| City Flats, opposite City Wharf, 162,379 feet | 3,000 00 |
| Total City Lands | $22,413 50 |
| Total surrendered estates | 2,324 40 |
| Total tax-title lands, about | 10,000 00 |
| Salable Almshouse lands, about 215,000 feet, at 4c. | 8,600 00 |
| | $43,337 90 |

The following appraisal has been made of some of the city property, hereinbefore classified. The estimates are based upon valuations made within a few years past.

The figures set against the items of City Lands, and Surrendered Estates, represent about the taxable value of the property, and are not, as a whole, an over-estimate.

The amount set against these lands has been reduced by recent sales.

The Mill-Pond Property which is quoted above at $15,000.00, the same as when purchased, has had a considerable sum expended upon it in filling, and although lots fronting on Putnam Avenue have since been sold, the remaining land is actually not less valuable.

An attempt to develop this property was made several years since, and a plan was adopted, showing proposed streets, with suitably sized lots thereon. There have been no sales made in conformity with this plan, inasmuch as the city has failed thus far to secure the coöperation of adjoining land-owners in the matter. When they shall have united with the city for the development of the property, and the contemplated streets are laid out through this territory, the salable portion of this land will be in demand for building purposes, and will easily offset any losses that may have accrued on other lands sold by the city.

The valuation of the various City Buildings and School Houses is based upon their cost, and is given for statistical purposes.

**Appraisal of Real Estate.**

| | |
|---|---|
| Almshouse and Land | $45,000 00 |
| Cambridge Cemetery | 79,750 00 |
| City Buildings, Land and Furniture | 282,284 00 |
| City Lands and Surrendered Estates, (salable) | 24,737 90 |
| City Lands occupied by Sewer Department (on Pilgrim Street) | 4,740 00 |
| City Lands, occupied by Water Works (on Pilgrim Street) | 6,660 00 |
| City Flats, 162,000 | 3,000 00 |
| Engine-House, Inman Square | 12,000 00 |
| Engine-House, on Portland Street (and land) | 18,000 00 |
| Gravel Pit, near Fresh Pond | 4,000 00 |
| Mill-Pond Lands | 15,000 00 |
| School Houses and Lands | 716,000 00 |
| Tax-title Lands | 10,000 00 |
| Wharf, Main Street, Lower Port | 7,000 00 |
| Total | $1,228,171 90 |

Respectfully submitted,

EDWARD R. COGSWELL,
DANIEL E. FRASIER,
WARREN IVERS,
FRANK H. TEELE,
} *Committee on Public Property.*

# REPORT

OF THE

# SUPERINTENDENT OF PUBLIC BUILDINGS.

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OFFICE OF THE SUPERINTENDENT OF PUBLIC BUILDINGS,
CITY HALL, CAMBRIDGE, DEC. 1, 1887.

*To the Honorable City Council:* —

GENTLEMEN, — In compliance with the City building ordinance, I have the honor to submit my second annual report in relation to the construction, repairs and improvements which have been made on the public buildings owned by the City, during the year ending November 30, 1887, under the direction of the Committee on Public Property. The principal expenditures have been as follows:

The completion of new plumbing in the basement of the Allston School house, Ward 2, at a cost of $2,284.00.

The introduction of a horizontal tubular boiler in the basement of the Washington School house, Ward 1, with necessary attachments for heating and ventilation, costing $3,215.00.

Extensive repairs made on the Harvard Grammar School house, Ward 2, as recommended in my last report, have required an outlay of $1,475.25.

The fencing around the Webster School house, Ward 4, has been completed; the front yard paved with brick, and sundry other improvements made at a cost of $860.53.

It has been found necessary during the past season to construct new drainage for the Latin School house basement and its surroundings, with catch-basins, conductors, curbing and grading at a cost of $994.94.

The new brick school house located on Fourth Street was commenced in the month of August. The exterior is entirely

completed, and the interior is now ready to receive its finish. This building has a frontage of 40 feet; it is 42 feet deep, three stories high, with a mansard roof; it is situated on the south side of the present Putnam School house and is intended for a wing to the contemplated school house to be built by its side after the old structure is demolished. Plans for the whole structure are now being prepared by the architect, and will be ready for early inspection should the City Council decide to complete the work.

The contract price for the new wing was $13,145.00 and payments on the same have been made to the amount of $4,700.00, leaving a balance of $8,445.00, the amount of which will be paid out of funds specially reserved for the purpose. A contract has been awarded to the builder for an extra flight of stairs in this building to reach the attic floor, with a finished hall-way at an extra cost of $250.00. The filling, grading, paving, concreting and cesspool on and around the premises have also been awarded to the same party at a cost of $225.00; for these items there will be required an additional appropriation of $475.00, to which should be added an amount sufficient to provide for extra work which is liable to be required, but cannot always be foreseen.

The general condition of school houses has required a considerable outlay during the year and they still call for much care and expense. The continued postponement of needed repairs has caused many to show serious marks of decay and require an early expenditure in this direction to prevent a more general deterioration.

During the year some necessities have arisen not previously obvious and while larger amounts than at first anticipated have been expended on a few of the school houses, a less sum than estimated has sufficed for expenditures on many others; their sanitary conditions have required much attention and remedies have been applied to defective drainage and ventilation. It has been found necessary to fill and grade around several of the school house buildings in order to keep the water from the basements; this has been a source of considerable outlay, while quite a number of furnaces have worn out and been replaced by others.

The school houses number 35 at the present time, of which 17 are built of brick and 18 of wood.

## Cost of School House Repairs.

| | |
|---|---|
| High School | $247 50 |
| Latin School | 90 60 |
| Allston Grammar | 448 36 |
| Corlett Grammar | 251 91 |
| Putnam Grammar | 23 79 |
| Shepard Grammar | 52 22 |
| Thorndike Grammar | 397 28 |
| Washington Grammar | 343 88 |
| Webster Grammar | 206 12 |
| Wellington Grammar | 212 56 |
| Agassiz Primary | 158 32 |
| Boardman Primary | 170 65 |
| Bridge Primary | 217 08 |
| Cushing Primary | 232 71 |
| Dana Primary | 135 23 |
| Dunster Primary | 321 28 |
| Felton Primary | 86 58 |
| Gannett Primary (new) | 552 75 |
| Gannett Primary (old) | 297 73 |
| Gore Primary | 147 94 |
| Holmes Primary | 57 21 |
| Lassell Primary | 501 58 |
| Lowell Primary | 42 37 |
| Mason Primary | 35 24 |
| Otis Primary | 509 76 |
| Quincy Primary | 80 04 |
| Reed Primary | 44 30 |
| Riverside Primary | 41 57 |
| Sargent Primary | 97 15 |
| Stearns Primary | 155 39 |
| Tarbell Primary | 163 04 |
| Willard Primary | 541 54 |
| Wyman Primary | 359 53 |
| Showing an aggregate expenditure on account of school house repairs of | $7,223 21 |

## Almshouse.

A two-story brick building is now in process of construction on the Almshouse estate to be used for a school-room, work-shop, storage and sundry other conveniences. This structure is well advanced, and will be completed in the course of another month. The contract price was $4,845.00 on which no payment has been made. This also will be paid for from funds already on hand and specially reserved for the purpose.

## Fire Department.

A brick building, having a frontage of 37 feet, by 82 feet in depth and two stories high, has been erected on Portland street, Ward 2, for the use of Hook and Ladder Truck No. 2, and also for a relief engine, The structure is nearly completed. It is plainly built, yet it is symmetrical in appearance, substantial in all its details, and with all modern improvements. The contract price was $14,541.00 upon which payments to the amount of $9,000.00 have been made, leaving a balance for a renewed appropriation of funds reserved for the purpose of $5,541.00. The contract for a Steam Boiler, with all necessary attachments for this building has been awarded at a cost of $882.00, also one for filling and grading at a cost of $180.00. These items, with others suggested, will require an additional appropriation for their payment at the proper time.

Besides the $9,000.00 paid on account of the contract the following work has been completed and payments made :

| | |
|---|---|
| Drainage | $467 92 |
| Architect | 425 00 |
| Signs | 32 50 |
| Water Supply | 10 10 |
| Sliding Poles | 110 00 |
| | $1,045 52 |
| Paid Contractor | 9,000 00 |
| Total Payment | $10,045 52 |

The miscellaneous repairs on the several engine-houses have been as follows :

| | |
|---|---|
| Engine-house No. 1, Brattle Square | $7 50 |
| Engine-house No. 2, Main Street | 266 75 |
| Engine-house No. 3, Fourth Street | 82 64 |
| Engine-house No. 4, North Avenue | 240 62 |
| Engine-house No. 5, Inman Square | 363 43 |
| Chemical, Central Square | 14 15 |
| Hook and Ladder No. 1 | 58 77 |
| Hook and Ladder No. 2 | 7 65 |
| | $1,041 51 |

## Police Department.

The amount expended on Police Stations for repairs has been as follows: —

| | |
|---|---|
| Station No. 1, Brattle Square | $15 00 |
| Station No. 2, Central Square | 170 20 |
| Station 5, North Avenue | 5 25 |
| | $190 45 |

## Public Buildings.

| | |
|---|---|
| Painting has been done on the exterior of the City Hall at an expense of | $159 00 |
| Improvements in the office of the City Treasurer have been made by enlarging the counters and affording a more convenient arrangement for work; a mahogany screen with plate glass has also been added at a total cost of | 295 00 |
| The addition of a window in the office of the City Auditor, at an expense of | 90 00 |
| New floors in the offices of the City Clerk and Engineer were laid at a cost of | 135 00 |
| The fence in the rear of City Hall cost | 72 30 |
| With sundry other repairs made at an expense of | 467 03 |
| Showing a total expenditure on the City Hall of | $1,218 33 |
| On the Brattle Square building, Ward 1, there has been expended for repairs | $956 31 |
| The repairs on the Central Square building, Ward 4, have amounted to | 472 86 |
| Total | $2,647 50 |

It is almost impossible thus early to estimate accurately on the cost of the entire work of another year, yet it is confidently believed that the amounts attached as an estimate on the several buildings will in the aggregate be a sufficient sum for the ordinary expenses for repairs during the year.

I hereto append statements and estimates of the probable cost for repairs which it will be necessary to make on the public buildings during the ensuing year, as follows: —

The Washington School house situated on Brattle Street, Ward 1, is in a condition requiring general repairs externally and internally and will require at least $1,300.00, to put the building and its surroundings in good condition.

The Felton School house on Amory Street, Ward 2, is in a a very dilapidated condition; but as the proposition has long

been and still is entertained that this building should be remodeled in the near future, I suggest, as in my last report, that only such slight repairs be made at present as will serve a temporary purpose.

The Webster School house on Upton Street, Ward 4, is the largest in the City, and is heated by seven furnaces, consuming on an average 125 tons of coal annually, which give at times a very limited and insufficient amount of heat; the ventilation is also defective in the older part of the building. There are in this school house about 800 scholars whose health and comfort is involved; I, therefore, in the interest of the City, and of the teachers and scholars, recommend for your early attention and consideration the suggestion, that the seven furnaces be removed and put to use in smaller school houses, and that a sufficient and proper system of steam-heating and ventilation be substituted. The sanitary condition in the original part of the building should receive early attention; the foul odor arising from this is complained of by the Board of Health, and is a constant source of grievance and a serious annoyance; it is suggested by competent parties that, to do away with the bad odor and unhealthy condition now existing, the old plumbing be taken out and replaced by such work and system as will insure pure ventilation and health; these matters, although involving considerable expense, are earnestly urged upon your notice for early consideration.

There will be required, as far as is now apparent, for ordinary repairs on the

| | |
|---|---|
| City Hall building | $700 00 |
| Central Square building | 600 00 |
| Brattle Square building | 1,100 00 |
| Total | $2,400 00 |

On school houses, not mentioned before: —

| | |
|---|---|
| Latin | $700 00 |
| High | 500 00 |
| Allston | 440 00 |
| Harvard | 285 00 |
| Corlett | 220 00 |
| Putnam | 100 00 |
| Shepard | 600 00 |
| Amount carried forward | $2,845 00 |

| | |
|---|---|
| Amount brought forward | $2,845 00 |
| Thorndike | 400 00 |
| Webster | 550 00 |
| Agassiz | 110 00 |
| Boardman | 425 00 |
| Bridge | 160 00 |
| Cushing | 300 00 |
| Dana | 425 00 |
| Dunster | 330 00 |
| Felton | 100 00 |
| Gannett (new) | 275 00 |
| Gannett (old) | 100 00 |
| Gore | 110 00 |
| Holmes | 260 00 |
| Lassell | 100 00 |
| Lowell | 80 00 |
| Mason | 55 00 |
| Otis | 270 00 |
| Quincy | 83 00 |
| Reed | 219 00 |
| Riverside | 88 00 |
| Sargent | 248 00 |
| Stearns | 400 00 |
| Tarbell | 150 00 |
| Wellington | 70 00 |
| Willard | 195 00 |
| Wyman | 265 00 |
| Total | $8,603 00 |

## Fire Department.

The engine-houses are in a generally fair condition. I am not aware of any extraordinary requirements for any of the buildings, unless it be incurred by the erection of a small brick building at the rear of Engine-house No. 5, Inman square; such a building appears to be necessary for the storage of the hose-carriage during the winter season, and for a coal-station, the expense of which would be about 350.00. Aside from this I estimate that an appropriation to meet the necessary expenses for repairs for the ensuing year will be as follows:—

| | |
|---|---|
| Engine-house No. 1 | $50 00 |
| Chemical Engine-house No. 1 | 75 00 |
| Engine-house No. 2 | 75 00 |
| Engine-house No. 3 | 65 00 |
| Engine-house No. 4 | 162 00 |
| Engine-house No. 5 | 235 00 |
| Hook and Ladder house No. 2 | 200 00 |
| Total | $862 00 |

## Police Department.

Estimate for ordinary repairs :—

| | |
|---|---|
| Station No. 1 | $120 00 |
| Station No. 2 | 60 00 |
| Station No. 3 | 100 00 |
| Station No. 5 | 125 00 |
| | $405 00 |

With appropriations made as suggested, it is believed that the City Buildings may be well cared for and kept in a condition to prevent decay and make them generally creditable to the city.

Respectfully submitted,

BENJ. H. STEELE,

*Superintendent of Public Buildings.*

# REPORT

OF THE

# INSPECTOR OF BUILDINGS.

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OFFICE OF THE SUPERINTENDENT AND INSPECTOR OF BUILDINGS.
CITY HALL, CAMBRIDGE, December 1, 1887.

*To the Honorable City Council:* —

GENTLEMEN, — In compliance with Section 5 of the City Building Ordinance, I have the honor to submit my second annual report in relation to the business of this department for the year ending Nov. 30, 1887. The Building Ordinance as amended at the beginning of the year, has been received with general approbation, and meets with a cordial acceptance by the building community. The opposition shown towards the Ordinance during the first year following its adoption, has to a large degree been overcome, and as a result I am happy to state that I have been obliged to make but one complaint to the Court on account of any violation since the year began.

By reference to tables annexed it will be seen there have been 526 permits given, which is a considerable increase of work over previous years. The character of the work on a large number of foundations and structures has been generally very satisfactory, and the fact that the city has an Ordinance for guidance in building, has been recognized, and its provisions have been generally accepted and cheerfully complied with.

There have been an increased number of improvements made during the year, in the condition of buildings which were in a dilapidated state, caused by their resting upon foundations of wood. Many of these are on lowlands of the city, and have been raised to a higher grade and stone foundations substituted, rendering them more healthful, secure, and substantial, thereby much improving those sections of the city in which they are located.

During the year frequent notices have been served on parties

requiring them, to make safe and secure sundry buildings, which on inspection were found to be in a dangerous condition.

The annexed tables will show the number and character of the required alterations, all of which with slight exceptions have been met with a ready compliance.

In detail the services of the Inspector of Buildings have been required in the following cases for repairs for public safety:

| | |
|---|---|
| Buildings in dangerous condition | 14 |
| Chimneys in dangerous condition | 34 |
| Foundations in dangerous condition | 6 |
| Wood work too near chimneys | 7 |
| Boiler explosion | 1 |
| Violation of ordinance | 18 |
| Services of State inspector | 2 |
| Complaint in Court | 1 |
| Whole number | 83 |

Table showing the number of permits granted in each ward for buildings, and the purposes for which they are intended.

| Wards. | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Additions to houses | 18 | 19 | 10 | 28 | 18 |
| Bake houses | | | 1 | | |
| Carriage houses | 2 | 2 | 2 | 5 | 5 |
| Club houses | 2 | | | | |
| Cellar walls | 6 | 17 | 4 | 15 | 7 |
| Cut through party-walls | | 1 | | | |
| Chimneys rebuilt | 1 | 2 | 1 | 2 | 3 |
| Dwelling-houses in blocks | 4 | 4 | 5 | 5 | 4 |
| Engine-house | | 1 | | | |
| Engine room | | 1 | | | |
| Factories | 2 | 6 | 3 | 6 | |
| Furnaces reset | 1 | 1 | 2 | 4 | |
| Museum | 1 | | | | |
| Offices | 1 | 2 | 3 | | 1 |
| Single dwelling-houses | 53 | 26 | 18 | 46 | 59 |
| Store buildings | | 3 | 4 | 5 | 1 |
| School houses | | 2 | | 1 | |
| Storage houses | 3 | 7 | 8 | 9 | 3 |
| Shop buildings | 3 | 2 | | 3 | 3 |
| Stables | 12 | 4 | 5 | 5 | 6 |
| Steam boilers | 2 | | 1 | 2 | 1 |
| Telescopic gas-holder | | | 1 | | |

Of the above permits, 437 were for wooden buildings, 16 for brick buildings, and 73 for sundry purposes, making a total of 526.

Those built of brick are divided as follows: —

| | |
|---|---|
| Club houses | 1 |
| Dwelling house in block | 1 |
| Engine-house | 1 |
| Factories | 4 |
| Museum | 1 |
| Single dwelling-houses | 2 |
| Store building | 1 |
| School house | 1 |
| Stable | 1 |
| Storage houses | 3 |
| Total | 16 |

Permits granted for each month: —

| | |
|---|---|
| December | 25 |
| January | 16 |
| February | 11 |
| March | 45 |
| April | 64 |
| May | 50 |
| June | 74 |
| July | 52 |
| August | 53 |
| September | 58 |
| October | 43 |
| November | 35 |
| Total | 526 |

In closing I am pleased to report so good a showing in the matter of new buildings erected and improvements in old buildings, and also to notice that there has been adopted in most instances, a better style and character to buildings recently erected and in process of erection, than formerly existed; thus demonstrating progress, and additional comfort, safety and sanitary security.

Respectfully submitted,

BENJ. H. STEELE,

*Superintendent and Inspector of Buildings.*

# REPORT

OF THE

# COMMITTEE ON SOLDIERS' AID.

---

THE Committee on Soldiers' Aid submits to the City Council its report for the year ending Nov. 30, 1887: —

| | |
|---|---|
| The amount paid as regular State aid was . . . . . | $9,524 00 |
| The amount paid to indigent soldiers and sailors was . . . | 2,865 00 |
| The amount paid to the agent employed in the examination of settlements, etc., was . . . . . | 480 00 |
| Total . . . . . | $12,869 00 |

| | |
|---|---|
| The amount received from the Commonwealth was . . . | $10,942 00 |
| The amount received from other towns and cities . . . . | 84 00 |
| | $11,026 00 |

There are now upon the State-aid list 203 persons, and upon the list of indigent soldiers and sailors 26.

All of which is respectfully submitted,

EDW. W. HINCKS,
P. ALLEN LINDSEY,
WILLIAM E. HUTCHINS,
JOSEPH A. BALL,
JOSEPH J. KELLEY,

*Committee on Soldiers' Aid.*

# REPORT

OF

# THE CEMETERY COMMISSIONERS.

*To the Honorable the City Council:—*

THE Board of Commissioners of the Cambridge Cemetery respectfully submits its thirty-fourth annual report, the same being for the year ending November 30, 1887.

| | |
|---|---|
| The amount appropriated at the beginning of the year was | $15,000 00 |
| Total amount of expenditures | 14,745 98 |
| Balance of original appropriation unexpended | $254 02 |

By a general order of the City Council, passed November 30, 1887, the excess of revenue in all departments over the estimated amounts, was credited to the appropriations.

| | |
|---|---|
| On this account the Cemetery appropriation at the end of the year was | $17,229 80 |
| This leaves an unexpended total balance of | 2,483 82 |

For a detailed account of expenditures reference is made to the Auditor's report.

The receipts for the year have been as follows:—

| | |
|---|---|
| Burial and tomb fees | $3,032 68 |
| Lots and graves | 7,661 25 |
| Foundations and brick graves | 1,344 41 |
| Care of lots | 3,518 81 |
| Rent of house | 183 30 |
| Removals | 90 00 |
| Apples, from trees in Winchester Estate | 16 00 |
| Cedar posts, wood, grass, and hay | 286 95 |
| Labor, grading, and sodding | 266 68 |
| Myrtle, setting posts, junk, and larch-poles | 127 60 |
| Interest on fund for perpetual care of lots | 513 00 |
| Repairs, etc. | 189 12 |
| Total amount of receipts | $17,229 80 |
| The estimated revenue was | $15,000 00 |
| Actual revenue | 17,229 80 |
| Excess of revenue over estimate | $2,229 80 |

| | |
|---|---|
| Number of lots prepared this year, old part, 29, new part, 11 | 40 |
| Estimated value of same | $13,671 97 |
| Number of lots graded (not finished) | 46 |
| Estimated value of same (when finished) | $14,950 00 |
| Number of lots, now ready, for sale, old part 61 new part 52 | 113 |
| Estimated value of same | $27,935 32 |
| Single graves, prepared and for sale (new part) | 80 |
| Estimated value of graves for sale | $1,600 00 |
| Amount received for perpetual care in 1887 | $1,550 00 |
| Amount of fund for perpetual care of lots | $10,525 00 |
| Number of interments this year | 604 |
| Total number of interments in cemetery | 15,372 |

The usual work at the Cemetery has been continued with great care and diligence, and especial attention has been given to the lately acquired "Winchester Estate," which has been laid out into very desirable lots and graves, in that portion between the knoll and Charles River. Many of the avenues and paths have been graded and macadamized, and trees and ornamental shrubs planted at desirable intervals. The old cedar trees at the entrance have been removed, and replaced with maple or other trees, while the ground has been graded for ornamental beds.

The old pump and well have been removed, and their place supplied by a hydrant which furnishes Fresh Pond water for drinking purposes.

The average number of men employed during the year has been eighteen, and the quality and amount of work accomplished has been satisfactory.

The records and other documents pertaining to the Cemetery are increasing rapidly, and the question of providing more commodious facilities for safe-keeping should be favorably considered. Aside from the value of these records, in the conduct of Cemetery affairs, they should be preserved on account of the historical worth, which is attached, since by them may be seen the material growth and system of the Cemetery, and, once destroyed, it would be impossible to replace them.

We would call attention to the condition of the old fence at the entrance to the Cemetery grounds. The general appearance of the surroundings would be greatly improved if this fence, which is rapidly decaying, were entirely removed, and the stone wall continued to the Mount Auburn property, and suitably stone-capped.

We must again call your attention to the need of a more convenient receiving-tomb. This matter is becoming more pressing every day, and should receive early attention.

The old burying-ground, near Harvard Square, has received considerable care and attention. The paths have been graded and straightened and the whole place was sowed to grass early in the spring. Some of the old tombs have been renovated and repaired. And it is our intention to continue the work at this ancient burial place until every objectionable feature is entirely removed and the place becomes one suited to the resting place of so many of our illustrious and honored dead.

Although the various improvements at the Cemetery have been pushed with vigor, and many alterations have been made at heavy expense, yet the commissioners have not exceeded the appropriation which was made for the year, while they are pleased to note a large excess of revenue over the estimate.

Before closing this summary of the affairs of the Cemetery we pause to notice the demise of the late superintendent, James Kimball Farwell. For twenty-one years he had discharged the duties of his position with prudence and skill, in a manner worthy the encomiums alike of the public and the Commissioners. Of a gentle disposition, sympathetic in nature, he has been enabled to perform the peculiar and delicate demands of the superintendency with marked success. In acknowledging our appreciation of his faithful service to the city, of the uprightness of his life, and his thorough integrity, we feel that a severe loss has been sustained by the community in the death of an upright citizen and an honorable Christian man.

The position of superintendent has been filled by the selection of Charles S. Childs, who has had experience under Mr. Farwell, and is thus enabled to continue the work of his predecessor with care and discretion.

WM. E. RUSSELL,
JOHN F. O'BRIEN,
DAVID ELLIS,
GEO. S. SAUNDERS,
LEANDER GREELY,
SILAS B. BUCK,
CHARLES E. RAYMOND.

*Cemetery Commissioners.*

# REPORT

OF THE

# CITY ENGINEER.

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CITY ENGINEER'S OFFICE CITY HALL,
CAMBRIDGE, Dec., 1887.

*To the Honorable the City Council:* —

GENTLEMEN,—The City Engineer herewith presents a report of the operations and expenses of the departments of engineering and sewers under his charge for the year ending November 30, 1887.

## Streets.

The bulkhead recommended for the last two years has been constructed under a contract with Messrs. John P. Perkins & Son in a thorough and substantial manner, and completes a long needed improvement.

The granite block paving on Main Street has been extended as far as Lafayette Square. It is hoped that this very desirable improvement will be continued to Harvard Square, estimates for which have been prepared.

Plans and specifications have been prepared and proposals received for a new wall on the southerly end of the Third Street bridge, the proposals for which were so much in excess of the estimated cost, that the matter was abandoned for this year. As this wall is largely held in place by the bridge piles in front of it, the work of rebuilding should be done at an early day.

A contract for a sea-wall on the river front of the old Mill Pond has been entered into with Charles Linehan, but for various reasons very little has been accomplished towards completing the same.

A new steam road-roller has been purchased and is doing excellent work on our streets.

Streets have been laid out and accepted as shown in the following table, viz: —

| Street. | | | | | Plan. | | |
|---|---|---|---|---|---|---|---|
| Name. | From | To | Length in feet. | Width in feet. | Date. | Made by | Accepted. |
| Bates Street..... | Avon Hill Street.... | Raymond Street.... | 356.70 | 40 | July 12, 1887. | William H. Whitney..... | Nov. 11, 1887. |
| Bolton Street..... | Dublin Street. ..... | Dublin Street..... | 978.30 | 25 | Nov. 9, 1885.. | William A. Mason & Son. | Dec. 31, 1885. |
| Brewster Street..... | Appleton Street..... | Brewster Place..... | 343.08 | 35 | Oct. 19, 1887 . | William A. Mason & Son. | Oct. 31, 1887. |
| Crescent Avenue..... | Raymond Street .... | Walden Street..... | 995.20 | 40 | Sept., 1884... | Robert B. Palfrey..... | Dec. 31, 1885. |
| Fresh Pond Avenue..... | Vassal Lane..... | Concord Avenue.... | 898.00 | 100 | May 19, 1879. | City Engineer..... | June 30, 1887. |
| Highland Street..... | Appleton Street..... | Sparks Street..... | 669.10 | 40 | July 25, 1887. | William A. Mason & Son. | July 29, 1887. |
| Marion Street..... | Cambridge Street... | Jefferson Street..... | 249.50 | 30 | July 15, 1873. | E. F. Bowker..... | July 29, 1887. |
| Plymouth Street..... | Hampshire Street... | Webster Avenue.... | 408.65 | 40 | Sept., 1876... | Charles D. Elliot ..... | May 24, 1883. |
| Portland Street..... | Main Street..... | Albany Street..... | 391.00 | 50 | Nov. 30, 1885. | E. F. Bowker..... | Dec. 31, 1885. |

## Bridges.

No extensive repairs or rebuilding have been required during the year. All the bridges are now in good condition, and will need only the ordinary repairs, except the southerly abutment of the Third Street bridge, which should be rebuilt.

## New Bridge to Boston.

Favorable action has again been taken relating to this structure. Commissioners have been appointed and a contract has been entered into for the construction of the piers and abutments. Work has been commenced and the bridge is now a certainty. Plans have been prepared at this office for widening of Front Street and the extension to the new bridge, with estimates of the cost on the widths of 80, 90 and 100 feet; also on a grade crossing with the Boston & Albany Railroad, and for an overhead crossing over the same railroad. The matters of width and grade of the new avenue are now under consideration, several hearings having been held, meeting the various companies and parties interested in its construction. No definite results have been reached as yet.

## Sewers.

There have been constructed the present year $4\frac{307}{1000}$ miles of sewers. The details of their construction are shown in the accompanying table. The total length of sewers in the city is now $78\frac{141}{1000}$ miles.

# Sewers Constructed Between Dec. 1, 1886, and Dec. 1, 1887.

| Location. | | | Construction. | | | | | | Total Cost. |
|---|---|---|---|---|---|---|---|---|---|
| Street. | From | To | Built by | Material. | Size in inches. | Man-holes. | In-lets | Length in feet. | |
| Appleton | Vassal lane | Nor'ly to n'r Concord av. | City Engin'r | Portland Pipe | 12 and 10 | 2 | 46 | 650.7 | $922 88 |
| Bath and other streets | The Charles Rivr | Cor. Garden and Water-house streets | A.W.Bryne& City Engin'r | Wood and brick | 42x48, 40x52 | 8 | 131 | 2,332.4 | |
| Brattle | Reidesel avenue. | Westerly | City Engin'r | Akron pipe | 10 | | 16 | 249.0 | 228 33 |
| Brattle | End of old sewer | Westerly | " " | " " | 10 | | 16 | 199.7 | 177 58 |
| Brattle | End of old sewer | Easterly | " " | " " | 10 | 1 | 4 | 60.6 | 82 73 |
| Brattle (see Bath and other streets) | Hawthorn st. | Mason street | A. W. Bryne | Brick | | | | | |
| Brendon | Raymond street. | Westerly | City Engin'r | Akron pipe | 12 and 10 | 2 | 42 | 666.4 | 686 53 |
| Brewster | End of old sewer | Westerly | " " | Portland & Ak.pipe | 10 | 1 | 23 | 305.0 | 309 57 |
| Clifton | Spruce street | Northerly | " " | Akron pipe | 18 | 1 | 19 | 266.3 | 887 71 |
| Concord av. (see Walden street and Concord avenue) | Walden street | Near Appleton street | " " | | | .. | | | |
| Fairfield | Pemberton st. | Northerly | " " | " " | 10 | 1 | 28 | 429.4 | 416 27 |
| Follen | End of old sewer | Westerly | " " | " " | 10 | .. | 4 | 63.2 | 57 50 |
| Foster (see Gibson and other sts.) | Gibson street | Easterly and westerly | | | | .. | | | |
| Garden (see Bath and other sts.) | Mason street | Waterhouse street | | | | .. | | | |
| Gibson and other streets | The Charles Rvr. | Foster street | E. F. Bowker | Wood and brick | 22x22, 23x25, and 19x21 | 7 | 90 | 1,443.4 | 2,355 59 |
| Green | Banks street | Easterly | City Engin'r | Akron pipe | 10 | .. | 15 | 209.7 | 244 79 |
| Hammond | Oxford street | Gorham street | " " | Portland pipe | 12 | 2 | 35 | 515.1 | 842 22 |
| Hawthorn (see Bath and other sts.) | Mt. Auburn st. | Brattle street | | | | .. | | | |
| Harvard | End of old sewer | Wes'y to n'r Hancock st. | City Engin'r | Akron pipe | 10 | .. | 4 | 29.1 | 64 28 |
| * Harvard and Lee | Clinton street | Lee Street School | " " | " " | 8 | .. | 26 | 453.6 | 745 94 |
| Harvey and Montgomery | Cedar street | George street | " " | " " | 15 and 12 | 3 | 60 | 915.4 | 1,147 13 |
| Highland | Sparks street | West to n'r Appleton st. | " " | " " | 12 and 10 | 2 | 46 | 640.9 | 787 04 |
| Hubbard avenue | Raymond street. | Walden street | " " | Portland & Ak.pipe | 12 and 10 | 1 | 60 | 809.9 | 860 02 |
| Kenway (see Gibson and other sts.) | Gibson street | Easterly | | | | .. | | | |
| Lee (see Harvard and Lee) | Harvard street | Lee Street School | | | | .. | | | |
| Lowell (outlet) | | | " " | Brick and wood | Brick, 55x52 | .. | | | |
| | | | | | Wood, 52x48 | | | 70.6 | 674 23 |
| Main | Hancock street | Easterly to near Lee st. | City Engin'r | Akron pipe | 10 | 1 | 22 | 281.2 | 409 58 |
| Mason (see Bath and other streets) | Brattle street | Garden street | | | | .. | | | |
| McDonald | Mt. Auburn st. | Northerly | " " | " " | 18 and 12 | .. | 7 | 185.3 | 502 59 |
| Montgomery(see Harvey & Mong.) | Harvey street | George street | " " | | | .. | | | |

* Paid by Public Property.

## Sewers Constructed Between Dec. 1, 1886, and Dec. 1, 1887, (Continued).

| Location. | | | Construction. | | | | | | Total Cost. |
|---|---|---|---|---|---|---|---|---|---|
| Street. | From | To | Built by | Material. | Size in inches. | Manholes. | Inlets | Length in feet. | |
| *Mt. Auburn (Belmont dist.) | Lowell street | McDonald street | City Engin'r | Brick | 32x41½, and 37x48 | 8 | 203 | 3,505.1 | $33,561 14 |
| Mt. Auburn (see Gibson & other sts.) | —— place | Gibson street | | | | | | | |
| Mt. Pleasant | End of old sewer | Southerly | " " | Akron pipe | 10 | .. | 4 | 65.0 | 87 05 |
| Mt. Pleasant | End of old sewer | Southerly | " " | " " | 10 | .. | 4 | 50.6 | 58 26 |
| Norris | Cedar street | Northeasterly | " " | " " | 12 | .. | 8 | 86.9 | 182 51 |
| † Portland | End of old sewer | New truck house (Fire D) | " " | " " | 8 | .. | 1 | 598.6 | 474 87 |
| Prescott | Cambridge st | Southerly | " " | " " | 10 | .. | 15 | 218.6 | 155 68 |
| Prince | End of old sewer | Easterly | " " | " " | 10 | .. | 4 | 39.3 | 36 17 |
| Putnam avenue | End of old sewer | Near Brookline street | " " | " " | 10 | .. | 6 | 72.1 | 63 99 |
| Raymond | Crescent avenue | Southeasterly | " " | Brick | 18x24 | 1 | 20 | 293.3 | 1,113 49 |
| Reed | Spruce street | Harvey street | " " | Akron pipe | 12 and 10 | 5 | 98 | 1,400.6 | 1,934 79 |
| Rockingham | End of old sewer | Southerly | " " | " " | 10 | .. | 3 | 47.6 | 42 93 |
| Rogers | End of old sewer | Easterly | " " | " " | 12 | .. | 8 | 128.8 | 234 70 |
| Saville | Walden street | Southeasterly | " " | " " | 10 | 1 | 21 | 341.9 | 343 48 |
| Summer | End of old sewer | Westerly | " " | " " | 10 | .. | 13 | 97.7 | 78 87 |
| Surrey | Banks street | Easterly | " " | " " | 10 | .. | 18 | 249.5 | 323 28 |
| Trowbridge | Kirkland street | Near Cambridge street | " " | " " | 12 and 10 | 3 | 46 | 887.3 | 1,553 18 |
| Vandine | Portland street | Northwesterly | " " | " " | 10 | .. | 21 | 274.9 | 290 76 |
| Vassal lane | Lake View av | Appleton street | " " | Brick and Akron pipe. | 30x39, 28x36, 24x30, and 15. | 6 | 155 | 2,217.0 | 5,719 82 |
| Walden st. and Concord avenue | Vassal lane | Near Appleton street | " " | Akron pipe | 12 and 10 | 3 | 64 | 892.7 | 1,473 67 |
| Watson | End of old sewer | Westerly | " " | " " | 10 | .. | 4 | 40.5 | 37 57 |
| Winthrop | Dunster street | Westerly | " " | " " | 10 | .. | 11 | 163.7 | 285 80 |
| Wright's Court | Banks street | Athens street | " " | " " | 10 | .. | 19 | 277.9 | 294 15 |
| Wright | End of old sewer | Northwesterly to near Norton street | " " | " " | 10 | .. | 2 | 13.5 | 21 81 |
| | | | | | | 59 | 1442 | 22,740.0 | $60,770 58 |

* Special Appropriation.

† Paid by Fire Department.

### Belmont District Sewer.

This sewer commenced last year late in the season under a special appropriation of $25,000 was continued through the severe weather of last winter until the frost was about four feet thick, when the appropriation having become exhausted work was stopped, and not resumed until the frost was out of the ground. An additional appropriation of $8,000 was made to complete the sewer. While it is possible to carry on such work during the winter months, it is attended with a large increase in the cost, and should only be done in cases of dire necessity. Calls are already being made for the extension of this sewer to the Belmont district.

### Vassal Lane Sewer.

The sewer in Vassal Lane, recommended in my last report, has been constructed for the relief of the residents on Concord Avenue and Appleton Street, Saville Street, Walden Street and vicinity, and has relieved a long felt necessity for drainage.

### Bath Street Sewer.

This sewer, recommended for so many years to relieve the Shepard and North Avenue district, has been built under a contract with Mr. A. W. Bryne, with the exception of about 300 feet of the northerly end, which was taken with his consent and built by the sewer department of this city, it becoming evident that he probably could not complete the work before the cold weather set in. It is quite probable that this sewer may require to have a further extension at an early day, and a more complete separation of storm water effected.

### Sparks Street Sewer.

A new outlet and a set of cast-iron tide gates have been built at the outlet of this sewer, and it is expected that relief will be afforded to this sewer system which has had for many years a very defective outlet.

### Pearl Street Sewer.

A new set of cast-iron tide gates has been placed on this sewer. These gates are of an entirely new pattern, with faces

planed in a lathe, making a perfect fitting surface. Their operation has been very satisfactory so far as observed.

### Hubbard's System.

From the estate of Gardiner G. Hubbard, comprising some 10 acres, a new system of sewers has been devised and laid by Mr. Edwin F. Bowker, Civil Engineer, under direction of the City Engineer, a new outlet for which was created in Charles River.

### Bridge Street Sewer Outlet.

This outlet and surroundings have, in conjunction with the authorities of Somerville, been thoroughly cleaned in the same manner as has been adopted for several years past. I am still of the opinion that this nuisance can be treated more carefully at the works where created, and not allowed to enter the main sewer. With this end in view, a long series of investigations, conducted by the Boards of Health of Cambridge and Somerville, in connection with the writer, have been going on during the past season, and much valuable information has been obtained, which satisfies us beyond a question, as to where the nuisance comes from, and will, we hope, be useful in determining some more complete method of treatment. All the parties interested have met us fairly and have expressed a willingness to do what lies in their power to remedy the evil, the difficulty being to determine the best method. As this matter will probably be more fully noticed in the report of the Board of Health, I forbear further comments.

### Alewife Brook.

But few complaints have been made, and very little has been done aside from the usual cleaning. It was supposed that the suit brought by the Henderson brothers would have been put on trial the present year, and preparation was made to meet the same. But some of the parties to the suit having gone to California, the case has been postponed until spring.

### New Sewers Required.

In view of the recent generous gifts made to the city by Mr. Frederick H. Rindge, by which large and costly buildings are

about to be erected in the vicinity of Cambridge, Trowbridge, Irving and other streets near, it is recommended that a new sewer be constructed in Cambridge Street, extending from the Oxford Street sewer so called, as far as Baldwin Street. The sewers in this district are very shallow, and are entirely inadequate to the present requirements. The new sewer should be placed from 3 to 5 feet lower than the old one, and the Oxford Street sewer is of ample depth to accomplish the object. This will form a new trunk sewer from which laterals can be extended as occasion may require. The trunk sewer will probably cost from $8,000 to $10,000.

### The Belmont District Sewer

should be extended along Mt. Auburn Street to Auburn Place, through Auburn Place to the old culvert, intercepting the surface flow at this point. From here small sewers should be extended to reach the cluster of houses located in the immediate vicinity. The cost of this extension will probably amount to about $8,000 or $9,000.

The demand for sewers in new and unoccupied streets is steadily increasing; not even the cheapest class of houses are now built without there is a sewer in the street, and it is possible the demand will be greater than that of the last year.

### Possible Repairs on the Binney Street Sewer.

This sewer was built in 1875–76. Its outer end, which for a distance of about 1000 feet was enclosed in a wooden coffer-dam, is now rapidly deteriorating, and is in a number of places broken away. The whole of the upper part of the structure will last but a short time longer. Some portions of the masonry are badly cracked and the form of the sewer has in places materially changed. A more careful examination will be made before the appropriations are asked for, but it is possible that work may be required at once to preserve the sewer.

| | |
|---|---|
| The appropriation for Sewers (construction) was . | $25,000 00 |
| Transferred from Sewers (maintenance) . . . . | 3,700 00 |
| " " Belmont District Sewer . . . | 261 36 |
| Excess of revenue over amount estimated . . . | 6,474 70 |
| Amount carried forward . . . . . | $35,436 06 |

| | |
|---|---|
| Amount brought forward | $35,436 06 |
| Amount expended | 28,815 89 |
| Balance unexpended | $6,620 17 |
| The appropriation for Sewers (maintenance) was | $19,000 00 |
| Transferred to Sewers (construction) | 3,700 00 |
| | $15,300 00 |
| Transferred to Belmont Sewer | 500 00 |
| | $14,800 00 |
| Amount expended | 14,587 64 |
| Unexpended balance | $212 36 |

SPECIAL CONSTRUCTIONS.—BELMONT DISTRICT SEWER.

| | |
|---|---|
| Appropriation, original | $25,000 00 |
| " additional | 8,000 00 |
| " " | 238 64 |
| " Premium | 322 50 |
| Total cost | $33,561 14 |

BATH STREET SEWER.

| | |
|---|---|
| Appropriation | $22,000 00 |

(Finished, but bills not all in.)

## Water Works.

Work has been continued on the Stony Brook additional supply under the contract with Messrs. Henry H. Pike & Son, and their contract (except as to time) was satisfactorily completed on or about the middle of October of this year.

A substantial brick gate-house has been erected over the gate-chamber, and forms a protection for the six large gates and hoisting apparatus for the same, as well as the screens and other appliances necessary for regulating and controlling the supply to be taken to the city. This work has been done under a contract with Marshal N. Stearns in a very satisfactory manner. The building is of face brick with New Brunswick free-stone (yellow) trimmings, slated roof, copper flashings and surmounted by a cupola with vane bearing the letter C.; on the front of the porch is a tablet with the inscription "Cambridge Water Works, 1887."

The overflow has been spanned by an iron latticed arched truss foot-bridge. This structure was erected by the Boston Bridge works in a very satisfactory manner, and is a very neat and graceful structure.

The testing of the pipes commenced last fall was completed. Three of the pipes were badly burst and two or three slight leaks were discovered, all of which have been repaired. The bursted pipes were paid for by Messrs. R. D. Wood & Co., the contractors for the same, it being a portion of their guarantee.

The decision of Judge Lowell in the case of Messrs. Kiernan & Grace has been rendered, and they were allowed the sum of $5,298.31, a portion of this, covering work already performed by them. This was accepted by both parties and the amount paid.

Awards have been made in most of the cases where land has been taken, but I am not aware that the awards have been accepted. Commissioners have been appointed to hear the cases of water damage. The case of Wm. Roberts is now being heard by them, the principal part of their side being now in.

In view of the magnitude and importance of this work it was thought proper to have some formal opening and celebration. A committee was appointed to take charge, and arranged for the exercises to take place on Saturday, November 5th. The party left the City Hall about 9.30 A. M., proceeded to Fresh Pond in barges, riding around the Pond to the new gate-house on the southwest side, when the gate from the Stony Brook pipe was opened, the water rising gracefully through the new cap recently prepared for it, to a height of about 18 feet and becoming thoroughly aërated before it reaches the surface of the Pond. From here the party proceeded to the pumping station where a lunch was partaken of, after which a tablet bearing the names of the principal parties who have been instrumental in the organization, construction and maintenance of the works, was unveiled and a short address made by the President of the Water Board. From here the party took a special train for Roberts' Crossing on the Fitchburg road, where barges were taken and the party conveyed to the dam. After an inspection of this work barges were again taken and the party carried to the Woodland Hotel in Auburndale, where a sumptuous dinner was served, after which the feast of reason and flow of soul continued. Many toasts were propounded and responded to, calling out the Mayor, the President of the Water Board, and many others, among them the writer, who gave a descriptive account of the construction of the works, and some of the difficulties

encountered and overcome during the prosecution, and to meet the many solicitations and wishes that the descriptions might be preserved I have thought it best to incorporate them here.

After the surveys were made and temporary locations for the site of the dam were selected, lines of borings were made to determine the precise nature of the bottom on which the dam was to be erected, and also the best and most favorable site. You will observe that this was very important, as all the future work was dependent upon a careful and judicious selection of the site. Two kinds of borings were made; the first by driving a one and one-half inch iron tube with heavy weights into the bottom, then washing out the material from the inside of the tube with water forced down through a smaller tube inserted in the larger, with a force pump, the water flowing out of the larger tube, and bringing up the material with it. The other method was sinking a tube five inches in diameter, the interior or core being removed with a sand pump. Samples of all the above described borings were collected, placed in glass tubes, and kept for comparison, and upon which the final character of the foundation was adopted. The result of the borings which were carried down to a depth of 75 or 80 feet below the bed of the stream, revealed the unwelcome fact that the underlying strata below the surface-crust, which was found to vary in thickness from 4 to 22 feet, was a bed of fine sand extending to a very great depth, an undesirable and difficult substance to build a dam upon. The surface-crust was very uneven, and it was considered necessary to excavate through it to the sand-bed and drive sheet-piling into the sand as deep as it was possible. The size determined upon was 8 inches in thickness, and lengths varying from 15 to 30 feet. The tongues or splines were $1\frac{1}{2}$ inches by 3 inches in width. As this piling was very heavy and probably the largest ever driven in this vicinity, it became necessary to provide special machinery for driving it. The contract was so drawn as to provide if necessary a steam-hammer and the use of a water-jet if required. A steam-hammer made by the Crame Bros. of Detroit, was at last found which it seemed would fill the requirements of the case, and one was secured by the contractors. Its weight was 5,500 lbs, with stroke of 40 inches, capable of being run 75 to 100 blows per minute, the ordinary and actual use being 60 to 80 blows, the pile penetrating at each blow

about one-half an inch. The hammer was worked in an iron frame about 8 feet long, which in turn was fitted to slide up and down in the gins of an ordinary pile-driving machine, steam being supplied to the hammer through a flexible hose from a boiler standing on the bed frame of the machine.

The piles were sharpened so as to hug up, shod with iron, and secured in the ordinary way of holding sheet-piling when the driving commenced, the blow being transmitted through a short follower about 18 or 20 inches long. The followers were used up quite rapidly as the blows of the hammer rained thick and fast upon them. The sand was very hard to drive into, and when dry was particularly so, and almost as hard as a rock. Attempts made to drive some of them without shoeing made sorry work of it, the bottom of the pile being broomed up for 5 or 6 feet, so as to appear like a bundle of pack-thread, the follower for the head and the iron shoe, forming a complete protection for both ends. Other difficulties and obstructions were encountered, such as boulders and streaks of hard pan, some of which had to be dug out by going to considerable depths. And here the use of the water-jet in connection with the driving proved exceedingly useful. In some cases, when driving, the sand being dry, would become so hard and compact that no amount of pounding with the hammer would move it. Then the jet, which consisted of a stream of water under pressure through a hose to which a $\frac{3}{4}$-inch pipe about 20 feet long was attached, would be run down alongside of the pile, the force of the water escaping at the open end of the tube loosening up the sand and forming a way for the pile which would then start quite easily under the blows of the hammer. Then again, a boulder would lie in the path of the pile and stop its progress. The jet would then be put down a little way outside of the stone, forming an opening by washing away the sand and allowing the stone to roll into the hole formed, and leaving a free passage for the pile.

Many difficulties and discouragements were encountered, and there were times when it looked as though the sheet-piling would have to be abandoned. At first the men in charge of the machine, not being accustomed to it, did not understand how to run it, and then the packing from the steam joints was frequently blown out. An urgent letter to the inventor, stating

that if he wanted his machine to be a success in these parts, he must come here and show us how to use it, brought him here at once, where he remained until our men became familiar with its use. At another time the difficulties were so great, that the contractors refused entirely to go on, saying that it was an impossibility to drive them. Feeling the very great importance of this part of the work, the machine and gang were taken in hand by the engineers, and the work carried on by day labor, until the obstructions were overcome. After much patient labor and persistence, and the fact demonstrated that patience and perseverance would accomplish the work (and also at an expense not exceeding the contractor's prices) the machines and gang were again taken in charge by the contractor, and from this time on the work proceeded regularly, though at times slowly.

There now exists a tightly driven row of sheet-piling, extending the entire length of the foundation of the dam, some 650 feet. Where the hard bottom came within 30 feet of the surface of the sand, the piles were driven into it; where not, the piles were driven to a depth of about 30 feet, an extraordinary and difficult thing to do, and which, so far as the writer is aware, was never before accomplished in this vicinity with sheet-piling of such length and thickness in sand. After the piling was in place, the tops were cut off to near the level of the sand, and the whole was enclosed in a bed of concrete 12 feet wide and 4 feet thick, stepped down at intervals, to conform to the varying depths of the trench. Upon this base was erected a core wall 8 feet thick at the bottom, brought up to the level of the bed of the stream, and from this point battering to 3 feet thick at a point 3 feet below the top of the dam.

This wall was built of common field rubble-stone, obtained from the basin, laid in two lines of thin parallel walls laid solid in cement, the intervening space being filled with small stone in layers not exceeding 1 foot in thickness, the interstices being filled with grout or liquid cement. The up-stream side of this wall was smoothly plastered with clear cement. The wall in its highest part measures 50 feet from top to bottom. Some fear was expressed that, from its great height and resting on the sand, it might settle and crack, and as the wall was covered up about as fast as it was built, means were taken to determine whether it did settle or not, by carrying up a small pipe which was

inserted by an elbow into the bottom of the wall and extended up on the outside of the wall to the top. On this pipe, levels were taken from time to time. As yet no indication of settling has been discovered, and it is now believed that all danger on that account has passed. The remaining portion of the trench was filled with selected material, carefully tamped with heavy rammers, or rolled with grooved rollers. The earthwork of the dam is about 180 feet thick at the base, and was carried up in layers of selected material (all stones greater than 3 inches being excluded) not exceeding 1 foot in thickness, thoroughly wet, and rolled with sectional grooved rollers to a thickness of about 6 inches.

At elevation 64.00 there is a berme on the down-stream side 20 feet in width, and at elevation 68.00 there is one on the upper side, by which the base is reduced to 96 feet in width. The down-stream face is carried up with a slope of 2 horizontal to 1 vertical; is covered with loam 18 inches thick and sodded in part and seeded. The up-stream side, to the level of the berme is carried up with a slope of 3 to 1; and from this level to the top is made $1\frac{1}{2}$ to 1, with a slight curve at the top to prevent the wave action from washing the top of the dam. The whole face of the up-stream side is paved with heavy field stone 18 inches thick laid on a bed of cracked stone. The top of the dam is 20 feet wide, and has a walk in the centre 8 feet wide, while the borders are covered with loam and seeded.

The north end of the dam was entered into the bluff from 50 to 75 feet, the up-stream side being turned with a curve of 100 feet radius, thus lapping well on to the up-stream side of the bluff. A curve was also turned on the down-stream side, thus making the thickness at this point more than double that at any other. This was considered necessary, owing to the loose and porous character of the bluff with which the junction was made.

At the southerly end of the dam a much better state of things existed, the material there being ledge, and opportunity was taken to locate there all the appurtenances for collecting, distributing and wasting the water for which ample provision has been made. A channel 30 feet wide and about the same depth was first blasted out and the gate chamber located therein, about in line with the centre of the dam. This chamber is built of

cut stone, being largely from the quarries of Keene and Mason, New Hampshire, laid in courses of about two feet rise, the exterior faces being quarry-faced with arris lines cut around each stone. The chamber is divided into five smaller chambers by heavy partition walls, all of cut stone, and for the following uses: The right hand up-stream corner is the receiving chamber, in which the water is directly received from the basin, and contains three sluice gates for delivering the water to the other chambers. The next or middle chamber, contains the screens, and the bell-mouthed ends of the pipes which lead to Fresh Pond. The next chamber contains the stop-gates, 30 and 36 inches in diameter, which regulate the flow to the pond. On the opposite side is the waste way, which is to be used when more water comes than can be well passed at the overfall, or for the purpose of speedily emptying the basin. This is divided into two chambers, the first containing the stop plank and the large sluice gate, this gate measuring 5 feet by 6, the others before referred to being each 3 feet square. The water from the waste way is discharged through an arched sluice way, extending about 60 feet under the dam and discharging at the base below.

Adjoining the chamber, and nearly in continuation of the line of the dam, is the overfall. This is constructed of granite; has a water way of 40 feet in width, is 5 feet thick at the crest and 13 feet at the bottom, 10 feet high and rests in part upon the ledge. The elevation of the crest is 5 feet below the top of the dam. The dimensions of this overflow seem large for the size of the stream, but it is often subjected to sudden and large flows. It is estimated that the flood of February 7, 1886, would have filled this waterway of 40 feet to a depth of 4 feet. From the overflow the water passes between the walls of the overflow channel, made of stone 6 to 10 feet thick faced with granite and spaced 60 feet apart, coped with dressed granite coping, the space between the walls being paved with very heavy stone.

The retaining wall is continued around and extends up Summer Street, forming a retaining wall to hold the enbankment and prevent the water at full pond from overflowing Summer Street.

On the top of the gate chamber previously described has

been erected a gate-house of face brick, with New Brunswick (yellow) freestone belt courses and trimmings, which forms a pleasing contrast with the red brick. Over the door or arch way to the porch is a tablet with the inscription "Cambridge Water Works, 1887." The interior of the house is finished with face brick, the belt courses of light stone coming through and showing on the inside. The roof is carried by two trusses made of hard pine, and the roof covering is also of hard-pine boards matched and beaded, and forming the interior finish. The whole is finished with oil and shellac.

This gate-house contains all the hoisting-gear for the six gates previously described in the chambers below, as well as that for removing and handling the stop-plank, screens, etc.

From the gate-chamber start the two pipes leading to Fresh Pond, one a 36 and one a 30-inch pipe; after leaving the chamber the pipes turn sharply at about a right angle and pass across the dam uniting at a point near the northerly end in one, a 36-inch, which continues of that size until it reaches the force main of the Waltham Water Works about a mile distant, where a branch is provided to connect with and supply them if they should desire. From this point the pipe reduces to a 30-inch and continues through the Waltham Cemetery and private lands and highways to Fresh Pond; here it passes through a small gate-house on the border, where a gate regulates its flow at this end, and thence about 100 feet further and into the pond, where it discharges through a fancy fountain or an open end as desired.

The first mile of this pipe line was laid through private lands, a way for which was made by cuts and fills varying from 10 to 28 feet in depth.

Along the line of pipe at intervals of about one mile, gates were placed, each enclosed in a substantial brick chamber, surmounted with an iron cover and curb. The whole line has been fitted with air valves on the summits, and blow-offs at all the low points, thus affording ample provision for blowing out the air, and also for emptying the pipe, as well as to make repairs on any section of the eight miles without drawing the water from more than one mile of the pipe.

The basin which has been created by this dam extends about a mile and a quarter up the stream, is about quarter of a mile wide

and has bold and rocky shores. The available depth is 20 feet, the full depth the being about 30 feet, and it will contain about 350 million gallons. The bottom and sides have been carefully grubbed and cleaned by removing the mud and objectionable matter, or where impracticable by covering with gravel.

While this basin is quite small, it is an excellent one, there being practically no shallow water.

The possibilities of a further development of the stream are also good. Four miles up the main stream is Beaver Pond, where by erecting a dam about 20 feet high, a storage basin can be created with a capacity of about 680 millions of gallons, and a depth of about 15 feet.

On another branch, the Hobbs Brook, another basin can be created of about the same capacity, though it is not expected that either of them will be required for many years. It was thought best, and the possible sites for such dams have been secured.

For supplying Roberts mill with water during the construction of the works, a No. 9 Blake pump and a boiler were set up in a temporary house erected near the mill, a suction pipe laid to Charles River, the mill piped and water to the amount of about 300,000 gallons daily have been pumped at the expense of the City of Cambridge.

The work was performed under the following contracts:

Blasting ledge and clearing basin of wood, etc., John T. Scully & John A. Gill.
Borings by John A. Gill.
Work of constructing the dam and basin, Henry H. Pike & Son.
Gate house at Stony Brook, Marshal N. Stearns.
Gate house at Fresh Pond, John McDonald.
Gates and valves, Coffin Valve Co.
Pipe and special castings, R. D. Wood & Co.
Grading pipe line, Thos. F. & J. J. Maney.
Grading pipe line, Fresh Pond, John Brassil.
Pipe laying, section No. 2, Henry H. Pike & Son.

The larger portion of the pipe laying, nearly 6 miles, was done by day labor, under the direction of Hiram Nevons, Superintendent of the Cambridge Water Works, who has also had charge of the work of excavating the bottom of Fresh Pond, in Boat-house and Cambridge Nooks, and other work at the pond.

In the planning and construction of so large and important a

scheme of works, many important questions have arisen, and the services of our Consulting Engineer, Mr. N. Henry Crafts, have proved of great value, as well as Mr. Lewis M. Hastings, whose services have been of great value in planning many important parts of the work. While Mr. Geo. Davis has acted as Resident Engineer in charge of the construction of the work and to whom great credit is due for the faithful performance of the duties intrusted to him. He has been ably assisted by Benj. F. Bates, who has acted as his first assistant, as well as many others who have been employed on the work; to all of whom I desire to express my appreciation of services rendered.

A large amount of work has been performed on the shores of Fresh Pond, and Kingsley Park bids fair to become a beautiful spot on its borders, and should the scheme of taking more land and making the whole of the surroundings of the pond a park be carried out, it will become one of the most beautiful spots in the vicinity of Boston. And for all these improvements we are indebted to no one so much as the President of our Water Board, Chester W. Kingsley, Esq.

### Cemetery.

The usual amount of work has been done at the Cemetery in answer to calls form that department, and the new grounds lately purchased are fast assuming a fine and beautiful appearance.

### Office.

The demands upon the office are steadily increasing, and have been met with reasonable promptness, and I desire to express my acknowledgments to all the assistants connected with this department, for the willing and cheerful manner in which all their duties have been performed.

| | |
|---|---|
| The appropriation for engineering was . . . . . | $7,500 00 |
| Less amount paid by Water Works . . . . . | 1,500 00 |
| | $6,000 00 |
| Expended for salaries and expenses . . . . . | 5,691 17 |
| Balance . . . . . | $308 83 |

Respectfully submitted,

WM. S. BARBOUR,

*City Engineer.*

# REPORT

OF THE

# SUPERINTENDENT OF STREETS.

---

*To the Honorable the City Council :—*

THE undersigned asks leave to submit for your consideration his fourth annual report.

| | |
|---|---|
| The appropriation for Street Department (repairs and the collection of ashes) for the financial year, ending Nov. 30, was | $90,063 35 |
| Amount expended, | 89,925 48 |
| Balance unexpended | $137 87 |

This amount has been expended for the necessary labor, materials and utensils employed in grading and repairing streets, and for collecting ashes. For the different items, see the Auditor's report.

The streets, with few exceptions, are in fair condition, considering the unfavorable weather we have had, but are not what they should be for a city like ours; before they are, a large amount of money must be expended on them, and I think now is the time to begin. I would recommend an increased appropriation the coming year.

It is a well-known fact, that there is a general demand for better streets; all who travel them will admit that the demand is a just one. It should be remembered however that our streets, as a general rule, are made of gravel, and that the principal streets of Cambridge are the outlet and inlet to Boston of a large teaming area of country, a large portion of the teams carrying loads of from three to twelve tons; roads of this build cannot be kept in proper condition. The appropriation should be made large enough to pu

these roads at least, in proper condition, with cracked stone, and proceed as fast as possible on the principal thoroughfares with granite block paving.

A few figures here, I think, will not be uninteresting. The amount of money expended on the streets of Cambridge, commencing with the year 1867 and ending with the year 1876, was $1,470,864.29; the amount expended for the next ten years, commencing with the year 1877 and ending with 1886, was $860,663.21, showing an expenditure of the first ten years over the last, of 610,201.08, while the public streets have increased 16⅔ per cent in the last ten years. I think that these figures are a sufficient answer to all that has been said about our streets, and all that I need say on the subject at the present time.

The following streets have been graded wholly or in part during the present year.

Appian Way, full length.
Ash Street, from Brattle Street to Mount Auburn Street.
Auburn Street, from River Street to Western Avenue.
Austin Street, from Inman Street to School Street.
Bates Street, from Raymond Street to Avon Hill Street.
Blake Street, from Orchard Street to North Avenue.
Brattle Street, full length on south side; north side to Appleton Street, and from Fayerweather Street to the Mount Auburn Gate.
Cambridge Street, from Kirkland Street to North Avenue.
Davenport Street, from Orchard Street to fence.
Eighth Street, from Otis Street to Cambridge Street.
Essex Street, full length.
Follen Street, from Waterhouse Street to angle.
First Street, from Vine Street to Cambridge Street.
Foster street, from Willard Street to Sparks Street.
Franklin Street, from Sydney Street to Brookline Street.
Garfield Street, from Oxford Street, 200 feet west.
Green Street, from Sidney Street to Brookline Street.
Hancock Street, from Franklin Street to Kinnaird Street.
Harvard Street, from Inman Street to Clinton Street.
Henry Street, from Brookline Street to near Rockingham Street.
Hilliard Street, from Brattle Street to Mount Auburn Street.

Kinnaird Street, from River Street to Western Avenue.

Lancaster Street, from North Avenue to Agassiz Street.

Lexington Avenue, from Brattle Street to north of first new house.

Lowell Street, from Brattle Street to Mount Auburn Street.

Market Street, from Winsor Street to Bristol Street.

Norfolk Street, from Hampshire Street to Broadway.

North Avenue, west side, from Porter's Bridge to Garden Street.

North Avenue, east side, from Littlefield Place to Jarvis Street.

Otis Street, from Seventh Street to Ninth Street.

Perry Street, from Magazine Street past the church lot.

Portland Street, from Main Street to Albany Street.

Sparks Street, from Vassal Lane to Mount Auburn Street.

Spring Street, from Sixth Street to Ninth Street.

Story Street, from Brattle Street to Mount Auburn Street.

Temple Street, full length.

Third Street, from Bridge Street to Vine Street.

Willard Street, from Brattle Street to Mount Auburn Street.

And other streets, too numerous to mention, have been patched more or less,

(For streets accepted during the year, see City Engineer's report).

### Steam Street-Roller.

A steam street-roller has been procured for this department the present year, being one of the "Aveling & Porter" make, of 17 tons capacity when loaded. It has more than satisfied our anticipations and is a great accession to the department; so well pleased are the Committee on Roads and Bridges, and myself, with the service rendered by this one, that I shall ask the incoming City Government for an additional appropriation for another of smaller capacity, feeling satisfied that it will be a paying investment for the city.

### Bulkhead on Mount Auburn Street.

A bulkhead was built on Mount Auburn Street this year, which was very much needed. (For items in detail see City Engineer's report.)

### Land for City Yard.

A lot of land on Norfolk Street, fronting the present City Stable lot, has been procured for a city yard. This supplies a want, long felt.

| | |
|---|---|
| The appropriation therefor was | $10,000 00 |
| Amount expended | 9,999 78 |
| Balance unexpended | 22 |

### Sea Wall at Mill Pond.

The City Council of the present year has provided for a sea wall at the Mill Pond, on Charles River, extending from Houghton's Wharf to River Street, for a wharf for this department, enough of which will be completed to enable us to load stone on during the coming year and will be of great value to the department.

### Paving.

| | |
|---|---|
| The appropriation for Paving was | $35,202 07 |
| Amount expended. | 34,012 49 |
| Balance unexpended | 1,189 58 |

This amount has been expended in paving Main Street, from Portland Street to Kennedy's crossing, Harvard Street, south side, from Dunster Street to Bow Street, and the various side walks and gutters, where edgestones were set and bricks were laid; beside a large amount of necessary repairing and overhauling of sidewalks and gutters, where edgestones had been set and bricks already laid, and other necessary repairs to paving already done. In addition to all this, we paved the north side of Brattle Street, between the edgestone and the railroad tracks, from a little east of Appleton Street, to the termination of the double track above Fayerweather Street; a distance of 1,255 feet, with granite blocks we had made, out of the "rim rows" displaced by the paving on Main and Harvard Streets.

And here I might say again, that there are still miles of curbstone, brick sidewalks and gutters, sadly in need of repair, which should be provided for, and I still think that when

the people are anxious to do their part in paving sidewalks, the city should provide means to do its share.

And I will go further and say, that *all* much-travelled sidewalks should be paved.

The City Government of the present year has initiated means, in which I heartily concur, for the paving of Main Street, from Kennedy's crossing to and including Central Square, and the south side of Main Street, from Bow Street to Putnam Avenue.

### North River Flagging, for Street Crossings.

There has been purchased the present year, 2,400 square feet of North River Flagging, at an expense of $1,080.00.

Every piece of this has been used for the purpose named, beside a large number of other crossings that were made out of square granite blocks, and we shall ask the incoming City Government for a like amount for the ensuing year.

### Street Watering.

| | |
|---|---|
| The appropriation for Street Watering was | $20,341 00 |
| Amount expended | 20,326 05 |
| Balance unexpended | $14 95 |

This amount was expended for labor watering the streets, repairs to the carts, and payment for the water used.

The carts are in fair condition, but will require some overhauling the present winter.

I think, taking the increased revenue of the present year as a basis, that we will require three or four new carts for the incoming year.

### Bridges.

| | |
|---|---|
| The appropriation for Bridges was | $3,500 00 |
| Amount expended | 3,496 76 |
| Balance unexpended | $3 24 |

The bridges are in fair condition and will require but little more than the ordinary running expenses, for the coming year. (For further details, see City Engineer's report.)

### Shade Trees and Public Grounds.

| | |
|---|---|
| The appropriation for Shade Trees and Public Grounds was | $4,546 41 |
| Amount expended | 4,424 68 |
| Balance unexpended | $121 73 |

This department is in fair condition, but think that a liberal appropriation should be made, to allow for more generous care of the trees and to provide for the removal of the decayed or dead ones which turn up each year.

I believe that some provision should be made for putting proper guards around all trees in the public streets. Of course the undertaking is a large one, but some portion might be done each year, until all were reached.

### Grading Dana Square.

The appropriation for Grading Dana Square was $500.00. This amount was expended, together with an additional sum of over $300.00 paid from the Street Department appropriation.

The grading is completed and the ground is properly laid out and grassed down, with a temporary fence around the walks, for the protection of the grass. I think that the completion of the work has given general satisfaction to the public and was a much needed improvement.

### Schedule of Property belonging to Street Department.

| | |
|---|---|
| Thirty-three horses | $6,700 00 |
| Thirty-three watering-carts | 9,900 00 |
| One engine and stone-crusher | 3,500 00 |
| Five street-rollers | 1,500 00 |
| Twenty-four carts | 2,400 00 |
| Twenty-seven sets of harness | 725 00 |
| Eight wagons | 640 00 |
| Twenty-eight sleds and snow-ploughs | 1,875 00 |
| Tools and stable furniture | 913 00 |
| Thirty thousand bricks | 360 00 |
| Two hundred and fifty tons of gutter stone | 500 00 |
| One steam-roller | 6,000 00 |
| One hay-rack | 100 00 |
| One caravan | 150 00 |
| Six lawn-mowers | 90 00 |
| One lawn hand-cart | 80 00 |
| Three pungs | 100 00 |
| Garden hose | 10 00 |
| Total | $35,543 00 |

In conclusion, I desire to return my heartfelt thanks to the members of the Standing and Joint Committees, for their generous assistance and direction. I have only one regret in the matter, and that is, that they will not all be members of the incoming government. To his Honor the Mayor, for his ever ready, sensible advice and encouragement, and the other members of the City Council, for their indulgence and approval; and to the heads of the different departments, for their ready assistance, suggestions and advice, when needed.

Respectfully submitted,

JOHN McSORLEY.
*Superintendent of Streets.*

# REPORT

OF THE

# COMMISSIONERS ON WEST BOSTON, CRAIGIE'S AND PRISON POINT BRIDGES.

---

THE Commissioner for West Boston, Craigie's and Prison Point Bridges, submits for himself and associate, the seventeenth annual report of matters pertaining to West Boston and Craigie's Bridges, and the eleventh annual report on Prison Point Bridge.

## West Boston Bridge.

The principal work done upon this bridge during the past year has been, repaving the roadway, resetting the edgestones, and repaving the brick sidewalk from the draw to the Boston line on Cambridge Street.

The chain which moves the draw became almost useless on account of stretching, so that it became necessary to put in a new one. This new chain is made with square links, hand riveted, and it gives perfect satisfaction.

The sidewalk on the south side of the bridge, from the draw to the filled portion on the Cambridge end, is in a very bad condition, and will have to be reconstructed next year in the same way as the north side was done in 1886.

The commissioners were intending to rebuild it this year, but having tested its strength last winter by letting teams drive over it, they concluded to get one more year's wear out of it.

The Commissioners have considered whether it would be advisable to widen the roadway, by including the sidewalk on the southerly side. This would be a great advantage to travel

by vehicle. But as so many people on foot every day cross this bridge, and as foot travel, especially in the summer, seems to be on the increase, this change was not thought to be expedient. There is no finer promenade than West Boston Bridge on a pleasant day when the tide is high; and when the new Park Embankment on Charles River is completed, it will add much to the beauty of the surroundings.

The commissioners will give these matters due consideration before asking for their appropropriation for the year 1888–89.

The roadway from the draw to the filled portion on the Cambridge end, is in a bad condition, and ought to be repaved this next summer. It will involve a larger expenditure than we care to make at the present time. By making some repairs we will be able to delay this for another year. The travel by teams of all kinds is immense on both this and Craigie's Bridge and is on the increase every year. It comes from every direction and centres on these bridges. Of course it is not to be expected that paving on piled bridges will keep in place as long or as well as on filled land. The new sidewalk on the northerly side, that was rebuilt last year on a different plan from the old one, has given perfect satisfaction.

### Canal or Craigie's Bridge.

The end of the pier where the engine-house stands, became so weakened by vessels colliding with it, that it became necessary to drive seven oak piles to strengthen it, also to put in new fenders and new planking. The two draw-piers were rebuilt by putting in hard pine timbers, and covering them with two-inch spruce plank, kyanized to protect them from the weather, it is now in an excellent condition and will last for some years. Next year the pier on which the superintendent's house stands will have to be reconstructed.

The machinery on this draw is in good condition. We have been obliged to make only the ordinary repairs.

The paving on the roadway is somewhat out of repair; next year it will need attention

The electric lights on both these bridges continue to give entire satisfaction.

### Prison Point Bridge.

Only such repairs as were needed for the accommodation of travel and for passing vessels through the draw, have been made the past year.

Following is a statement of the number of teams of all kinds, and passengers, crossing the West Boston Bridge, between the hours of 6 A. M., and 7 P. M., Wednesday, December 7, 1887:

| | |
|---|---|
| Teams to Boston | 1,283 |
| Foot passengers to Boston | 2,007 |
| Teams to Cambridge | 1,239 |
| Foot passengers to Cambridge | 1,632 |
| Horse car trips (both ways) | 1,400 |
| Horse car passengers (both ways) | 35,000 |

Number of teams of all kinds, and passengers, crossing the Canal or Craigie's Bridge, between the hours of 6 A. M. and 7 P. M., Thursday, December 15, 1887:

| | |
|---|---|
| Teams to Boston | 2,984 |
| Foot passengers to Boston | 1,864 |
| Teams to Cambridge | 2,763 |
| Foot passengers to Cambridge | 1,647 |
| Horse car trips (both ways) | 378 |
| Horse car passengers (both ways) | 9,250 |

The usual statement is given of the number of draw openings and the number of vessels which passed through.

WILLIAM J. MARVIN,

*Bridge Commissioner for Cambridge, and Harbor Master on Charles and Miller's Rivers, and Broad Canal.*

CAMBRIDGE, Dec. 17, 1887.

Number of times the draws on the West Boston, Craigie's, and Prison Point Bridges have been opened, and the number of vessels which have passed through during the year.

| Date. | West Boston Bridge | | Canal or Craigie's Bridge. | | Prison Point Bridge. | |
|---|---|---|---|---|---|---|
| | Number of Draw Openings | Number of Vessels Passed Through. | Number of Draw Openings | Number of Vessels Passed Through. | Number of Draw Openings | Number of Vessels Passed Through. |
| December, 1886..... | 111 | 153 | 183 | 186 | 19 | 20 |
| January, 1887..... | 8 | 10 | 23 | 21 | 8 | 19 |
| February, " ..... | 8 | 13 | 30 | 31 | 1 | 1 |
| March, " ..... | 41 | 54 | 92 | 95 | 29 | 38 |
| April, " ..... | 133 | 178 | 256 | 262 | 37 | 52 |
| May, " ..... | 198 | 299 | 301 | 320 | 19 | 26 |
| June, " ..... | 204 | 296 | 375 | 416 | 25 | 29 |
| July, " ..... | 246 | 331 | 311 | 318 | 21 | 26 |
| August, " ..... | 327 | 489 | 440 | 492 | 47 | 55 |
| September " ..... | 267 | 394 | 454 | 478 | 56 | 71 |
| October, " ..... | 259 | 419 | 403 | 436 | 31 | 34 |
| November " ..... | 222 | 343 | 310 | 349 | 26 | 28 |
| Total..... | 2024 | 2979 | 3178 | 3404 | 319 | 399 |

# REPORT

OF THE

# CAMBRIDGE WATER BOARD.

---

*To the Honorable City Council of the City of Cambridge:*

The Water Board herewith submits to you its twenty-third annual report, being for the year ending November 30th, 1887.

**Total Cost of the Water Works.**

| | |
|---|---|
| Cost of the Works, Nov. 30th, 1886, as per last year's report | $2,294,043 39 |
| Expended during the year ending Nov. 30, 1887 | 142,453 11 |
| Making the total expenditure | $2,436,496 50 |

**Water Bond Account.**

| | |
|---|---|
| Whole amount of bonds issued | $2,366,900 00 |
| Amount paid from the Sinking Fund | 541,400 00 |
| Leaving unpaid Water Loan | $1,825,500 00 |
| From this deduct the present value of the Water Loan Sinking Fund as per Trustee's Account | 838,597 01 |
| Leaving the balance of the Water Loan yet to be provided for by the Sinking Fund | $986,902 99 |

Statement showing in brief the transactions in connection with the Water Works for the year ending Nov. 30th, 1887.

## General Construction Account.

RECEIVED.

| | | |
|---|---|---|
| From excess of rates, fines, etc. | $19,556 35 | |
| From refund of overcharge . . | 7 50 | |
| | | $19,563 85 |

EXPENDED.

| | |
|---|---|
| Amount expended on general construction account . . . . . | 19,563 85 |

## Stony Brook Construction Account.

RECEIVED.

| | |
|---|---|
| Balance of appropriation of 1886 . . . . | $18,192 46 |
| Amount of Water Bonds issued . . . . . | 95,000 00 |
| Premium on sale of the same . . . . . | 812 50 |
| Allowance made by R. D. Wood & Co., in settlement for cracked and light pipes . . | 287 22 |
| Sale of tickets, contractors, etc., from Boston to Roberts . . . . . | 42 00 |
| | $114,334 18 |

EXPENDED.

| | |
|---|---|
| On Stony Brook account . . . . . | $111,363 26 |
| Balance unexpended carried to new account . | 2,970 92 |
| | $114,334 18 |

## Fresh Pond Land Purchase, etc.

RECEIVED.

| | |
|---|---|
| Balance of appropriation of 1886 . . . . | $28,020 20 |
| Premium on sale of $15,000 bonds . . . . | 112 50 |
| | $28,132 70 |

EXPENDED.

| | |
|---|---|
| For purchase of sundry estates bordering on Fresh Pond, examination of titles, etc., . | $11,526 00 |
| Balance unexpended carried to new account . | 16,606 70 |
| | $28,132 70 |

During the past year the Water Board made a purchase of Childs' ice house on the westerly side of the Pond, while other interested parties purchased his business.

Also arrangements were made by which we purchased Mrs. Black's ice houses, and about two acres of her land. By this means we were relieved from the obligation to maintain a sluiceway in our dam at Black's Nook, and a canal to float the ice to her houses. The ice houses are now entirely removed from the borders of the Nook, and the city owns all the land around the borders of the same. It will thus be seen that there are but two ice privileges remaining on the borders of the Pond, namely the Boston Ice Company's formerly Tudor Co.'s, and the Fresh Pond Ice Company's formerly Hittinger's. Were these disposed of, the Pond would be clear of any business that would contaminate our water supply in connection with the Pond itself.

The slaughtering establishment of Niles Bros. on the other side of Concord Avenue from our Pond, it is believed by our State Board of Health, has already polluted the water in our Wellington Brook conduit; certainly the smell from the place is a nuisance to the whole neighborhood, and the whole business is a most undesirable one to be carried on so near our reservoir. We think vigorous steps should be taken by the City Council through the Board of Health or otherwise, to remedy this matter and abate the nuisance.

**Water Rates, Fines and Supply Account.**

RECEIVED.

| | | |
|---|---|---|
| From Water Rates . . . . | $206,538 46 | |
| Less rates refunded . . . | 1,789 82 | |
| Amount carried forward . | | $204,748 64 |

| | | |
|---|---|---|
| Amount brought forward . | | $204,748 64 |
| Shutting off and letting on water, seals, fines and rent | $456 50 | |
| From supply account . . . | 6,138 99 | |
| Accrued interest on $110,000 Bonds sold . . . . . | 172 22 | |
| Maintenance account . . . | 861 19 | |
| Construction account . . . | 7 50 | |
| | | $7,636 40 |
| | | $212,385 04 |

EXPENDED.

| | | |
|---|---|---|
| For general construction acc't | $19,563 85 | |
| For maintenance account . . | 37,610 62 | |
| For supply account . . . . | 4,714 05 | |
| For interest on Water Loan . | 97,355 00 | |
| Paid into the Sinking Fund, being 3 per cent on $1,715-500 . . . . . | 51,465 00 | |
| Surplus of 1887, to Sinking Fund . . . . . | 1,676 52 | |
| | | $212,385 04 |

**Comparative Receipts.**

| | |
|---|---|
| Water-rates for the year ending Nov. 30, 1887 | $204,748 64 |
| Water-rates for the year ending Nov. 30, 1886 | 199,404 43 |
| Showing excess of water-rates in 1887 . . | $5,344 21 |

**Water Supplied.**

| | |
|---|---|
| Amount of Water pumped in 1887 . . | .1,409,410,931 gallons |
| Amount of Water pumped in 1886 . . | 1,235,558,878 gallons |
| Showing an increase in 1887 . . . | 173,852,053 gallons |

This is the largest amount of water ever pumped in one year, showing a daily average increase of 476,307 gallons over the preceding year.

| | |
|---|---|
| The daily increase in 1885 over 1884, was | 448,968 gallons |
| The daily increase in 1886 over 1885, was | 302,209 gallons |
| The daily increase in 1887 over 1886, was | 476,307 gallons |

This shows the growth of our city, in the consumption of water from year to year, and is conclusive proof that our additional supply was indispensable and has come none too soon.

**How the Water is Used.**

| | |
|---|---|
| Amount sold by meter and used for watering the streets, in gallons | 362,547,100 |
| Amount used for domestic, fire and other purposes, in gallons | 1,046,863,831 |
| Making the total in gallons | 1,409,410,931 |
| Daily average pumping for the year | 3,861,400 gallons |
| Daily average high surface | 332,412 gallons |
| Daily average low service | 3,528,988 gallons |
| | 3,861,400 gallons |

Our high service is furnished through a stand pipe, while the low service is drawn direct from the reservoir. The difference in the levels between full stand pipe and full reservoir, is about 40 feet. We find the high service to work with entire satisfaction, and it is indispensable for furnishing water to the high lands and high buildings in the city.

## Rainfall and Height of Water in the Pond.

| Months. | Rainfall. | | | Water in the Pond below High-water Mark. | | |
|---|---|---|---|---|---|---|
| | 1885. | 1886. | 1887. | 1885. | 1886. | 1887. |
| | Inches. | Inches. | Inches. | Feet. | Feet. | Feet. |
| December, 1886 | 4.60 | 1.82 | 5.23 | 7.68 | 10.13 | 10.37 |
| January, 1887 | 5.43 | 6.41 | 5 28 | 7.71 | 9.67 | 10.80 |
| February, " | 2.94 | 7.35 | 4.66 | 7.61 | 6.29 | 9.95 |
| March, " | 1.06 | 3.49 | 4.46 | 6.72 | 3.83 | 9.52 |
| April, " | 3.61 | 2.43 | 3.94 | 6.42 | 3.21 | 9.04 |
| May, " | 3.77 | 3.92 | 1.79 | 6.35 | 3.55 | 9.30 |
| June, " | 4.10 | 1.48 | 1.86 | 6.94 | 4.31 | 10.20 |
| July, " | 1.72 | 3.54 | 4.19 | 7.91 | 5.45 | 11.61 |
| August, " | 5.21 | 3.20 | 4.10 | 9.07 | 6.40 | 12.68 |
| September, " | 1.78 | 4.64 | 1.36 | 9.95 | 7.59 | 12.73 |
| October, " | 5.56 | 3.62 | 3.22 | 10.69 | 3.87 | 12.66 |
| November, " | 9.20 | 4.22 | 3.90 | 10.69 | 9.62 | 12.05 |
| Total for the year. | 48.98 | 46.12 | 43.99 | 8.15 | 6.58 | 10.91 |

It will be seen by this table that the rainfall this year is a little less than for the two previous years, but not much. It will also be seen that from May to August, the Pond fell more than one foot per month, the difference of the height for three months being about 3 feet, 5 inches. At that time it became necessary to waste the water at Stony Brook dam, as the water came up so high as to interfere with finishing the work on the dam; so the pipes were opened and the water wasted into Fresh Pond as soon as the excavating of the bottom of the Pond was done. By this means the water we needed was furnished until it was shut off in October, when the Pond continued to fall again until November 5, when it had fallen to a point more than 13½ feet below high-water mark, a much lower point than ever seen before, and we hope and expect it was lower than it will ever be seen again. Since November 5, when the water was let on in the presence of the City Council and invited guests, it has run through our fountain continuously and the Pond has risen at

the rate of about one foot per week, besides furnishing our daily pumping supply.

This result, we think, demonstrates the estimates made by our engineers, that our thirty-inch main will deliver into the Pond from Stony Brook more than nine million gallons of water daily. After a few days more we shall stop pumping on the border of the Pond, and so far as we can see, shall have no more use for the auxiliary pumping station, and the same can be removed, the machinery moved out and sold, and the building taken down, the old lumber used elsewhere or sold as may be deemed best.

It is now proposed to let the water run into the Pond until we reach grade ten, which will give water enough for the use of ice cutting, and for our pumping direct from the Pond at our Engine House. We then propose to reduce the flow of water through the fountain so as to supply what we take out daily, holding the water at grade ten, until the spring freshets, when we will again open the pipe to its full capacity, and fill up the Pond to as high a point as it is advisable to have it, where we shall keep it until the water runs low in Stony Brook next summer, when we shall have a full Pond to draw from until the fall rains come again.

### Fresh Pond Reservoir.

In our last year report, after describing what had been done in riprapping the banks about the Pond except in front of the Ice Companies, we said: "If Cambridge Nook and Boat House Nook were deepened two or three feet, we should have all we could desire in Fresh Pond Reservoir." The importance of doing this work before letting in the water from Stony Brook, was so much impressed upon the Water Board that they requested the City Council to authorize them to do it, at an estimated cost of thirty thousand dollars. The appropriation was granted, and during the past season those nooks have been excavated to grade seven or less, and the work done within the estimate. This being done, will give us a depth of water in all parts of the Pond of not less than nine feet when the Pond is full, or at grade sixteen. In addition to deepening the Pond, we have been able to grade up the Park where the old Wythe ice house was, and other places about Cambridge Nook. The balance of the

material was put into Black's Nook, thus making a substantial beginning towards filling up this disagreeable place.

The improvements around the Pond in connection with letting on the new water supply have been the means of attracting many of our citizens to the place who have never been there before, and others who have been there in years past, come and can hardly believe what they see now, the change has been so great; but in one thing, so far as we have heard, they all agree, which is, that the right thing has been done as far as we have gone, in improving the City's well from which comes all our water. It only remains now for us to secure for the City the immediate surrounding of the Pond, and thus prevent any danger of contamination in the future.

There are many places around the Pond that ought to be gradually graded up to near high-water mark, in order to prevent stagnant waters standing around the borders of the Pond, which are both unhealthy and unsightly. Among these places may be named the balance of Black's Nook, Gay's Nook, Bright's Nook, and the low swamp on land southeast of the Pond, into which the drainage from Richardson's Pond, in Belmont, now empties; all these should ultimately be graded up as herein proposed, and drainage provided for Richardson's Pond, and that part of Belmont near there to prevent it running into the Pond.

There is another source of pollution, which already many of our citizens protest against; that is the use of 50 or more horses, used in the winter on the pond during the ice-cutting season. We are doing all we can to remedy this by employing boys who go around the Pond after the horses, with box sleds and gather up all the solid material that is dropped, that can be removed, but other sources of defilement from the horses cannot be gathered up, and this must continue to go into our water supply as long as horses are used upon the Pond. We are of the opinion that at no distant day, the people of Cambridge will demand that all such business shall be removed from their reservoir. When the time comes to carry out these improvements in part, or the whole, it will be necessary for the City to have additional legislative powers for acquiring the necessary lands around Fresh Pond, and we shall ask the City Council to petition the next General Court for such additional power and authority as may be needed, to be used at the discretion of the City Council.

### Stony Brook Dam and Reservoir.

We are happy to report this year that that long continued work is now done, and has been approved by our engineers, and is pronounced "a first-class job." We do not see how it could have been done better than it has been, and we feel that we can rest in the conviction that it will never wash away, or give us any trouble. It has never yet been filled up, but as far as it has been filled, within some eight feet of the top of the dam, no signs of leakage have been discovered.

The water was permanently let into Fresh Pond, November 5, since which time the Pond has filled about one foot per week, while at the same time the Stony Brook Reservoir, although only about one-sixth the size of Fresh Pond has fallen but very little, showing conclusively that Stony Brook is now at the end of a dry season, and before the fall of any snow, furnishing us with nearly as much water as our conduit will bring to us, which is something more than nine million gallons of water daily.

The Gate House at the dam is nearly completed. A man with a family, who occupy the building that has been used by our engineers, has been engaged to tend the gate-house, clean the screens, and to take general charge of our property at, and about, the dam and reservoir. Telephone connections have also been made with the house at the dam, our engine house, and the water office at City Hall, and soon will be with our Superintendent's house, and as this is also connected with the general telephone system running to Waltham and Roberts' Mill, we have the means now in hand to communicate with all parts of our Stony Brook system, should an accident at any time occur which demanded our immediate attention.

### Work to be done.

First. To make needed repairs in the wall of our Reservoir, and build a chronograph house near the stand pipe for nightly observation of the consumption of water, in connection with the detection of leaks and the waste of water. This we recommended last year, but the press of more important matters prevented our doing it the past year; we do not think this work should be longer delayed.

Second. For general construction account.

Third. For maintenance account.

Fourth. For supply account.

Fifth. For such further improvements around Fresh Pond as the City Council may approve.

For further particulars and details in regard to what has been done the past pear, and the present condition of the works, we would refer you to the Superintendent's and Registrar's reports made to us, which we transmit herewith as part of our report to you.

In closing we wish to commend the City Engineer and those employed in his office for their courtesy to us in responding cheerfully to all our demands on them, and also to commend our City Solicitor who has had much work to do in connection with the suits growing out of our land and water takings. We think he has, and is handling them wisely for the interest of the City.

And last, but not least, we commend the faithfulness of our Superintendent and Registrar in particular, and those working under them in a general manner for the discharge of their various duties.

At the completion of the work at Stony Brook, a formal celebration of the auspicious event took place. It was held on a beautiful day, November 5, 1887, and will be long remembered by those who took part in it, representing as they did more than sixty thousand people, whose necessities had that day been provided for, for many years to come.

A somewhat detailed account of the Stony Brook system was published in the *Cambridge Tribune*, a week before the formal celebration, and all the Cambridge papers published an account of the celebration itself. We have thought it would be well to embody these in our report this year for future reference, and that our children may know something definite of the work that was done in our day to furnish them with the water they will be using after we are gone. We have therefore added these statements to our report and they are herewith transmitted.

All of which is respectfully submitted,

C. W. KINGSLEY,
L. M. HANNUM,
JOHN F. O'BRIEN,
K. S. CHAFFEE,
JAS. M. W. HALL,
WM. E. RUSSELL,
JOHN H. CORCORAN,

*Cambridge Water Board.*

# THE STONY BROOK WATER SUPPLY.

**Its Opening to be Celebrated Today — How the Great Work has been done — What the City and its Guests will do Today.**

Few people are there in Cambridge who have any adequate idea of the work which has been carried on at Stony Brook for the past three years by the Cambridge Water Board, in establishing a future and extended supply of water for the City. Fewer still can appreciate the magnitude and thoroughness of the job, even after an inspection. Though not yet fully completed in some matters of detail, the job is essentially finished, and will be officially dedicated today. The need and wisdom of seeking a new supply of water beyond Fresh Pond has long since ceased to be questioned, although at the outset of the agitation in regard to the subject many people believed it a piece of reckless extravagance. To the doubters of today, and they are few, what ought to be convincing arguments for conversion to the side of the believers in the water works extension is an examination of the low state of Fresh Pond at present, and an acquaintance with the facts in regard to its comparative condition. The necessity of a further supply has been demonstrated more vividly than ever the past summer, in fact, the supply itself will not be ready for use any too soon, having even been called into requisition already.

### Location of the Stony Brook Supply.

The location of the new supply is partly in Weston and partly in Waltham, and is what is known as the Stony Brook basin, or more locally, the Roberts Mill Pond. It is seven miles from Fresh Pond by way of the line of pipe which connects the two basins. It was selected because of its availability, natural advantages and good quality of water.

The source of Stony Brook is near Sandy Pond, Lincoln. Its course lies in a southerly direction, passing through Lincoln and Weston and forming the line between Weston and Waltham. Its outlet is the Charles River. During two thirds of the year the stream flows placidly along, but in spring, when the winter's accumulation of ice and snow is melted and poured into its channel, it becomes almost a torrent. Although not over five miles in length, so tortuous is its course and so hilly the country through which it passes that its watershed area is something more than 23 miles, and, though its confines are very narrow, a great quantity of water is yearly discharged into the river.

The only use which has lately been made of the water from the brook was to run the asbestos paper mills of W. Roberts, located on South street, which crosses the brook 350 feet below the present dam and only a few hundred feet from the river. Originally there were several dams along the course, but when the city commenced its operations that at Roberts mill was the only one in use. It is the basin above this dam

selected as the reservoir for the Cambridge supply. The new dam built by the city, as has been said, is 350 feet above the bridge in front of Roberts mill, leaving a pretty sheet of water between the two. The basin or reservoir extends a mile and a quarter to the north and varies in width from 200 to 800 feet.

**Constrnction of the Dam and Basin.**

The shores of the basin are wooded. clearings having been made in the vacinity of the dam and for a few feet above high-water mark all the way around. The Water Board commenced work on the basin in the spring of 1885. It was not begun auspiciously, as the contractors who had been awarded the job, Kiernan & Grace, threw up the sponge after a month's operations, claiming that the city had not done as it had agreed and furnished work on the foundation of the dam fast enough to keep the men of the contractors constantly employed. The city claimed that this was not true, and a suit grew out of the trouble, and work was for a short time stopped at the dam. The auditor selected by the court awarded Kiernan & Grace $5,000 for the work they had accomplished and for the damages sustained by them. The contract was then awarded to H. H. Pike & Son. That firm began work where the first firm left off in the latter part of September 1885, and has continued since then energetically and without a break.

The building of the dam was the most important work of all that has been accomplished. The first step, however, was the drawing off of the water that was in the basin and the excavating of the mud on the bottom. Over 70,000 cubic yards were removed. Then a trench was dug for the site of the dam. The character of the soil was gravelly and clayey, with deposits of boulders here and there, as if some time the spot had been above water and the boulders had been dumped into pits in the earth. It was at first proposed that this trench should be about fifteen feet wide and ten feet deep, but so extensive was the deposit of boulders that, in many places, in order to reach the quicksand in which to drive the piling, it was necessary to go down to a depth of twenty-five feet, and thus at points this trench was made forty or fifty feet wide at the top and about fifteen feet wide at the bottom.

Piles thirty feet in length were then driven by a 500-pound hammer. The piles were groved together like matched boards, forming a water-tight barrier. This formed the first foundation of the dam. In the trench above the piling was then built a concrete foundation four feet thick and twelve wide. On this rested the core wall, with a base eight feet in width, rising to a height of seventy feet, and tapering off with a width of three feet. The core wall was built in two columns, with a chamber running down in the middle. Each column was first made water-tight and then the aperture between was filled with stone paving and the crevices filled with grout, making in itself another water-tight wall. After the commencement of the core wall, the body of the dam was begun.

The filling used was composed of sand, gravel and boulder clay, and as it was laid, was wet and rolled, and thus made perfectly water-tight. Nearly 100 feet of this were placed on each side of the core wall on the bottom of the pond, and this was gradually tapered until the width on

each side at the top was ten feet. This makes the dam 200 feet wide at the bed of the pond, and 20 feet wide at the upper part. It extends in a generally northerly and southerly direction across the line between Weston and Waltham, and the main portion is 800 feet long, while the wings constitute 300 more feet, making a total length of dam laid 1100 feet. From the bottom of the piling to the top of the dam the height is 85 feet, and from the bed of the pond to the top it is 36 feet. This will allow for a depth of water at the dam of 30 feet, and will be an increase of 20 feet in depth over the entire water area of the old mill pond between the Stony Brook station and South street. In filling in the dam 80,000 yards of material were used, and in the core wall there are 5000 yards of masonry. On the top of the dam there is a walk eight feet wide running from the Waltham side to the gate-house Each side of this way for a distance of six feet, or to the brink of the dam, and the entire down-stream side of the dam, are sodded. Beneath the berme on the lower side of the dam, facing the street, are two supply pipes leading from the gate-house to the end of the dam, where they merge into one which extends to Fresh Pond. There is a roadway 12 feet wide across this berme, each side of which is also sodded. Three flights of granite steps lead from the south extremity of the roadway next to the waste sluiceway up to the gate-house.

### Site of the Gate-House,

The site of the gate-house for the basin was determined by a very curious geological formation on the Weston side of the pond. From the upper end of the basin the channel of the brook follows a course almost in the central part of the valley, until, at about one-fourth of a mile above the site of the dam, it turns to the right and flows nearly under the bank of the Weston side. About 800 feet above the dam, however, it suddenly turns, and making almost a complete right angle, crosses to the Waltham side, and there after flowing in a straight course for about 100 feet, turns again and flows through the centre of the valley to the dam. The dam crosses the basin where the channel is near the Waltham bank, and naturally the gate-house would be placed at that side, especially as the pipes from Fresh Pond enter there, were it not for the geological formation on the Weston side. This formation is an immense ledge of red granite, out of which was blasted a space sufficient to hold the chambers of the gate-house. This makes it impossible for the water to penetrate under or around the foundation, and gives as solid a foundation and as tight chambers as it is possible to obtain under any circumstances.

### The Gate Chambers.

The gate-house proper is 25x31 feet square, and is one-story high from the upper level of the dam. Below it, chambers—of which there are five—extend to a depth of about thirty-two feet. The gate-house and its chambers are built entirely of granite, cut especially for the purpose in Marlboro, N. H. Of the five chambers, two will be used for waste water and the other three when it is desired to fill up Fresh Pond. In the first chamber will be the sluice gate, 5x6 feet, which will be opened to permit the water to escape when the overflow is unable to carry it

in sufficient quantities. This will be necessary only on rare occasions, when there is a freshet, or when it is desirous to drain the pond for repairs, etc. The second chamber is a waste chamber, and will be used only to control the rush of water before it enters the archway just beyond, in its flow to the lower stream. The third chamber will be used to admit the water destined to be carried to Fresh Pond. In this chamber will be three small gates, 3x3 feet, one above the other, to admit the water. The object of three gates is that at times the water is better and clearer at different heights in the pond. Thus, when that in the upper part is superior, it can be admitted through the upper gate; when it is better at a medium height, it can enter through the middle gate, and when it is preferred from the bottom part, it can be allowed to run in at the lower gate. In the chamber beyond this are arranged the sets of screens which will prevent the entrance of any débris that might be carried in that direction into the gates. In the last chamber are the water gates which control the supply of water to be carried to Fresh Pond. There are two of these gates, one connected with a 36-inch pipe, and the other with a 30-inch one, the object of two gates being that if it were ever found desirable to connect a second pipe with the basin, it could be done without breaking into the chambers. The two pipes connected with the two gates run only as far as the Waltham end of the dam, where they are connected with one 36-inch pipe, which runs to the Waltham pumping station a mile or more distant, where the 30-inch pipe begins, continuing to Fresh Pond.

### The Waste Sluiceway and Overflow.

Just beyond, and connected with the second or waste chamber, is the archway that carries the waste water under the dam and into the lower pond, when the overflow is unable to carry it all away. The run at the end of the archway is paved with boulders to a depth of two feet, to prevent the water, which at this point flows with great force, from washing away the foundation of the overflow which is just to the right above.

The archway itself is fifty-six feet in length, and is supported by buttresses built to the sides of the blasted ledge. Over these are built the three stages of stairs leading from the roadway along the lower berme of the dam to the gate-house. The overflow is at the extreme right of the dam looking down-stream, and is built on the ledge, the rock forming part of the carry to the lower pond as far as it extends. The opening in the overflow wall is forty feet wide, but the run just below it is sixty feet in width. The walls which form its sides are five feet high just above the point where the water empties into the lower pond, and gradually rise until at the top of the overflow it is level with the top of the dam. Across the overflow opening in the wall is built an iron arch bridge, having the full span of forty feet and a rise of three feet above the top of the abutment. It will be planked with two-inch hard pine. The end of the overflow nearly reaches Summer Street, and for additional strength a return wall is built just back of it. There is also a wing dam extending a short distance along Summer Street, where the water in the basin will be a little higher than the level of the street. Along Summer Street there is a granite dike built of the same stone as is used for the gate-house and its chambers and the overflow. The dam

thus far described was the contract undertaken by Messrs. H. H. Pike & Son.

### Topography and Capacity of Stony Brook Basin.

The natural advantages of the Stony Brook Basin are such that scarcely any work will be necessary to make the basin suitable for the storage of water. After the mud was changed from the bed of the pond, a hard and clean bottom was left, it being composed of hard blue gravel and boulder clay. The sloping banks of the basin were covered with a heavy growth of trees, and to make ready to raise the water twenty feet in height it was necessary to clear some of these away. Beyond this, comparatively little work has had to be done. The valley between Sibley's dam and Roberts dam is comparatively level, and this though halfway between the two there was another dam which it was necessary to cut away. Just above Sibley's dam, however, at Stony Brook station, below his mill pond, the stream, in a distance of 300 or 400 feet, turns almost a half-circle and falls about 26 feet in that distance. This fall of 26 feet gives ample room for the rise of 20 feet of water over the general surface of the pond. The length of the basin from the dam to the 26-foot falls is 1½ miles, but so changeable are its banks that it is almost impossible to estimate the length of water front. From the upper point of the basin to a point about one-third of the distance between Stony Brook station and Roberts crossing station the stream winds round in an almost exact half-circle, and then in a quarter-circle turns back toward the South Street bridge. It covers an area of 75 acres, and will contain about 360,000,000 gallons of water. The greatest flow in one day ever known was during the freshet of February, 1886, when about 700,000,000 gallons of water flowed through the sluiceway. It is possible to estimate the average daily flow of the brook during the year, as a record has been kept, and it will probably average 20,000,000 gallons per day. The basin, when filled, will make a beautiful sheet of water.

The quality of water found in the Stony Brook basin is called very good. It is much softer than Fresh Pond water and it is expected the mixture will be much more desirable for domestic use. The Stony Brook water also has a color which it is said will disappear before it reaches the Cambridge reservoir.

Between the Stony Brook dam and Fresh Pond there are nine gates, besides two at the gate-house. These gates along the way are principally for the protection against accident of people living in the vicinity of the pipe. There are two gates between the Waltham pumping station and the foot-bridge, that is, one on each side of the Waltham Cemetery, so as to shut off the water in the cemetery in case of accident.

### The Abutters.

There are eight abutters whose estates bordered on the mill pond, and to whom land damages must be paid. They are William Roberts, John Roberts' heirs, Mrs. Millar, Fitchburg Railroad Company, N. L. Sibley, Mr. Keefe, Mrs. Ellis, Mr. McCann and the Loring heirs. The city has estimated the value of the land in general at $200 per acre, while the assessors' valuation of many plots has been about $50. It is said, however, that some of the owners have sworn that the value of their land is

$1,000 per acre. By far the largest amount of money will have to be paid to the Roberts heirs and to Mr. N. L. Sibley, as, beside the land damages, both of these estates will claim a considerable amount of money for loss of water power.

When Cambridge people stop to think how near the present locality of the dam came to being the site of the Waltham Watch Company's works, and as a consequence the site of the city of Waltham, they may consider themselves fortunate indeed that they are enabled to obtain their additional supply so near home. It appears that Mr. Sibley, who owns the greater part of the land bordering on the brook, was, at one time, about twenty years ago, offered a good price for a portion of his property by the watch company. He agreed to sell it, but, before the papers were drawn, backed down and set a higher price. The company came up to his figures again, but Mr. Sibley advanced again in the same way as at first, and then charged so much more than the property was worth, the company sought another location. It has well been said that Mr. Sibley could have afforded to give what the watch company wanted free, as it would have brought the remainder of his vast estate into the market right away. But what was Sibley's loss was Cambridge's gain.

### The Engineering.

The work of building the dam and preparing the basin for the city's use has been primarily in charge of City Engineer, W. S. Barbour. Directly under him has been Mr. George Davis, who has by reason of his position as resident engineer had rather more to do with the work of construction than any one else. Mr. Davis has had the constant engineering assistance of Mr. B. F. Bates from the outset until the present time, while at different times and temporarily Mr. J. H. Stubbs has also assisted in the engineering work in a very satisfactory manner.

Messrs. Davis and Bates have boarded with families in the vicinity of their work during the two and a half years they have been employed on the job. The engineer's office at Stony Brook has been located in a building very near the South Street bridge. Altogether they have been quite comfortable quarters.

City Engineer Barbour has had the able assistance of Mr. N. Henry Crafts as consulting engineer, while Mr. George F. Greenlaw has acted as inspector for the city.

Mr. L. M. Hastings of the city engineer's office has had charge of the designing of the plans for the construction of the entire work at Stony Brook, the details of which have constituted no small job.

It took about ten months to lay the seven miles of piping between the dam and Fresh Pond. "Specials" have also been laid where the pipes pass near the Waltham water department's water main, and connection with the two systems can be made as soon as the latter city is ready to bear its share of the expense and lay the necessary pipes.

### The Stony Brook Inlet to Fresh Pond.

The water pipe from Stony Brook enters Fresh Pond at the South Nook. The pipe rises perpendicularly with the bed of the pond 100 feet from the shore. Its top is about on a level with the high-water mark of the pond. An experiment is to be tried, and will probably be in read-

iness today, of aërating the water as it enters Fresh Pond. On the top of the inlet pipe is to be placed a cap with a central opening of six inches. Around this opening will be a row of openings, each two inches in diameter, outside of that another row of openings, one and a half inches in diameter, and outside of those a third row, one inch. By this means a fountain will be formed, and the water, as it is thrown into the air, will be broken and aërated before mixing with the Fresh Pond supply. Into the openings in the cap will be fitted small nozzles to direct the streams. The cap is intended to be used only in summer, when it will serve the double purpose of purifying the water and form another attraction for visitors to the pond. It is calculated a stream can be thrown twenty-five feet into the air. The credit of this improvement is due to Superintendent Hiram Nevons of the water works and Engineer E. C. Brooks of the pumping station, who conceived the idea only recently, and which the water board was as late as last Monday in adopting, thereby making necessary the transplanting of the inlet pipe and its surrounding stone cone from their original positions. It also required various castings to be made and a vast amount of other work. The completion of the job is assured by today, so that the visitors will without doubt have an opportunity of witnessing the operation of the experiment.

### The Stony Brook Gate-House.

The gate-house at Stony Brook, as before stated, rests upon a solid bed of granite with the gate chambers imbedded in the granite ledge. The chambers were built by the contractors who built the dam. The house was erected by M. N. Stearns of this city. It is an attractive building, one story high, thirty-one feet front and twenty-five feet wide, facing to the south. It is built of face brick, with granite base, and trimmings of yellow New Brunswick freestone. The roof is surmounted by a cupola and vane. Over the front entrance is a brick porch. The building is not yet quite finished.

### Comparative Elevations.

The elevation figures shown on the section view of the core wall represent the height above the city base. Stony Brook high-water mark is 81, that is, 81 feet above the city base. Fresh Pond high-water is 16.85 feet above city base, making the fall between the former and the latter 64.15 feet. Stony Brook is within 10 feet as high as the high-water mark in Cambridge reservoir.

### Facts about the Cambridge Pumping Apparatus.

The water in Fresh Pond Friday was at a grade 3.38. Five and one-half feet more of water is necessary to be able to do the pumping direct from the main pumping station, and to do away with the auxiliary pump. If the Stony Brook supply should flow continuously and at its best, it would raise the pond about two and a half feet in one month. It would therefore take about two months to raise it to the necessary height to dispense with the auxiliary pump. The water from Stony Brook after today will doubtless be permitted to flow steadily into Fresh Pond. Providing it does flow steadily and at its full capac-

ity, the auxiliary pumps cannot be abandoned until January 1, anyway. It is very desirable that the City's supply shall not be dependent on the auxiliary pumps any longer than absolutely necessary.

The pumps at the auxiliary station comprise a twelve-inch centrifugal pump and a twelve-inch Follansbee pump. Each is capable of supplying six million gallons a day. In the main pumping station are also two pumps, capable of putting five million gallons a day into the reservoir. There is, besides, a high service pump with a capacity of one million gallons a day. The capacity of the reservoir is about six million gallons.

### The Condition of Fresh Pond.

The water in Fresh Pond, the present supply of Cambridge, is today at grade 3.38, the lowest it was ever known to be. Notable low-water marks in years past are as follows: November 24, 1870, 12.44 grade; February 23, 1875, 8.97 grade; February 7, 1881, 7.75 grade; January 1, 1884, 5.54 grade. High-water mark is 16.85 grade.

### The Tribune's Illustrations.

The views of the dam, basin and pumping station published in today's *Tribune* were reproduced by the Boston Engraving Company, from photographs by Mr. D. W. Butterfield. The cut of the gate-house is from a perspective drawn by Mr. Harry Adams of the City Engineer's office, while the diagram views of the gate-house chambers and section of the core wall and dam were made especially for us by Resident Engineer George Davis.

### Programme of Today's Exercises.

The programme of today's celebration in general is as follows: The Cambridge guests will leave the City Hall at 9 A. M. in Cambridge Railroad barges, and will be driven to the Fresh Pond pumping station. Here a tablet, described elsewhere, will be unveiled, and a few remarks made by President C. W. Kingsley. The party will then proceed to the south cove of the pond, where the Stony Brook inlet is located, and the water from the latter will be turned into the pond. A special train will then be taken from Fresh Pond to Roberts crossing, Stony Brook. Arriving at Roberts, the party will alight and take barges for the dam, half a mile away. The work there will be inspected and described. The barge will then be taken again for a drive to Woodland Park Hotel, Auburndale, where a dinner is to be held. Ex-Mayor Hall will preside. After dinner remarks will be made by President Kingsley, Mayor Russell, Mayor Fisher of Waltham, members of the boards of aldermen and common council, City Engineer Barbour and others.

The visitors from Waltham and Watertown will join the party at the City Hall in season to start in the barges. The Lincoln and Weston guests will meet the party at Roberts crossing. If today should be stormy the celebration will be postponed until next Saturday.

City Messenger Francis L. Pratt will be in charge of today's arrangements, which is a sufficient guarantee that everything will pass off smoothly and that everybody will be happy.

### The Tablet.

Following is the inscription on the tablet which is to be unveiled at the Fresh Pond pumping station. It is located over the rear door on the north-east end as seen in our view of the interior of the pumping station. This tablet is of Italian marble, an inch and a half thick, 14 feet 6 inches long, and 5 feet 4 inches wide, with a round top. The letters of the inscription are painted in red. Above the inscription is engraved a spray of laurel gilded. The tablet was cut by Mr. John McNamee at the Union Marble Works, Mt. Auburn. The inscription upon it reads as follows:

CAMBRIDGE WATER WORKS.
Chartered May 20, 1852,
To Take Water from Fresh Pond.

Incorporators:
Estes Howe, Gardiner G. Hubbard, Moses M. Rice.

Organized May 31, 1853. Ground broken July 21, 1855.
John H. Blake, Engineer; Gardiner Warren, Contractor.
Purchased by the City of Cambridge, April 28, 1865. J. Warren Merrill, Mayor.
Wellington Brook. Additional Supply.
Act obtained May 1, 1875. J. G. Chase, Engineer.
Stony Brook. Further Supply.
Act obtained May 21, 1884. James A. Fox, Mayor. Ground broken January 13, 1885.
Completed November 3, 1887. William E. Russell, Mayor.

Water Board 1885-1887:
Chester W. Kingsley, President.
James M. W. Hall Knowlton S. Chaffee,
Leander M. Hannum, John F. O'Brien,
William E. Russell, Mayor, *ex officio*,
John H. Corcoran, President of the Common Council, *ex officio*.
Superintendent, Hiram Nevons.
Clerk and Registrar, Walter H. Harding.

On Construction of the Stony Brook Supply:
Chief Engineer, William S. Barbour.
Consulting Engineer, N. Henry Crafts.
Assistant Engineer, Lewis M. Hastings.
Resident Engineer, George Davis.

Contractors for Dam and Basin at Stony Brook,
Henry H. Pike & Son.

Pipe Laying, Driveway and Improvements at Fresh Pond done under charge of Hiram Nevons, Superintendent.

Presidents:
J. Warren Merrill 1865 to 1867,
Ezra Parmenter 1867,
John Sargent 1867 to 1871,
J. Warren Merrill 1871 to 1873,
Chester W. Kingsley 1873 to 1876,
George P. Carter 1876 to 1883,
Chester W. Kingsley 1883 to ——

Superintendents:
George W. Fifield 1865 to 1867,
W. H. Pratt 1867 to 1869,
Samuel W. Dudley 1870 to 1877,
Hiram Nevons 1877 to ——

Pumping Engineers:
Thomas G. Bruce 1865 to 1870,
Edwin C. Brooks 1870 to ——
C. G. H. Bennink, President Common Council 1884.

### The Dinner at Auburndale.

The following menu has been prepared for the dinner to be given after the visit to the works:

SOUP.

Bisque of Clam. Julienne,

FISH.

Fillet of Haddock *à la* Rarebit.

REMOVES.

Hot Boned Turkey, with Mushrooms.
Boiled South Down Mutton, Caper Sauce.
Roast Ribs of Beef. Roast Spring Lamb.
Roman Punch.

SIDE DISHES.

Breaded Chops, Tomato Sauce.
Macaroni *au Gratin*.
Escaloped Tomatoes.
Chicken Croquettes. French Peas.
Potatoes. Celery.

SWEETS.

Charlotte Russe. Frozen Pudding. Lemon Sherbet.
Vanilla. Chocolate. Strawberry. Caramel.
Ice Cream.
Crackers. Cheese. Coffee.
Fruit.

The menu will be printed on two sheets of heavy card board, tied together with ribbon. The following inscription will occupy the first page of the card: "Dinner given by the City of Cambridge, in celebration of the completion of the Stony Brook water supply, at Woodland Park Hotel, Auburndale, on Saturday, November 5, 1887."

On the back will be the following: "Committee of arrangements.—Of the Water Board, Hon. James M. W. Hall, Hon. Leander M. Hannum, John F. O'Brien, Esq.; of the City Council, Aldermen Joseph J. Kelley, William E. Hutchins, Councilmen Frank H. Teele, James McDonnell, William S. Shannon."

### Today's Invited Guests.

The following are the names of guests who have been invited to participate in the celebration today:

CITY COUNCIL.

Mayor William E. Russell, Aldermen Edward R. Cogswell, Edward W. Hincks, P. Allen Lindsay, Fred. H. Holton, Joseph J. Kelley, John W. Coveney, Joseph A. Ball, Daniel E. Frasier, William E. Hutchins, Charles F. Stratton, John H. Corcoran, president; Councilmen William H. Eveleth, Warren Ivers, James McDonnell, Alexander Millan, Oliver H. Durrell, Thomas Houllahan, James McPeck, Alvin F. Sortwell, Frank H. Teele, Patrick J. Callahan, Patrick H. DeCourcy, Francis

Fitzpatrick, William S. Shannon, Edward A. Bingham, Franklin W. Haynes, Charles Waugh, Chester F. Sanger, James E. Tracy.

WATER BOARD.

Chester W. Kingsley, Leander M. Hannum, John F. O'Brien, Knowlton S. Chaffee, James M. W. Hall.

EX-MAYORS.

George Stevens, Charles T. Russell, J. Warren Merrill, Charles H. Saunders, Hamlin R. Harding, Henry O. Houghton, Isaac Bradford, Frank A. Allen, Samuel L. Montague, James A. Fox.

EX-PRESIDENTS COMMON COUNCIL.

John C. Dodge, George S. Saunders, John S. March, Marshall T. Bigelow, Joseph H. Converse, George F. Piper, Perez G. Porter, Charles Walker, George H. Howard, Francis H. Whitman.

HEADS OF DEPARTMENTS.

Walter W. Pike, city clerk; Edward J. Brandon, assistant city clerk; John McDuffie, clerk of committees; Francis L. Pratt, city messenger; William W. Dallinger, city treasurer; Harry T. Upham, city auditor; Charles J. McIntire, city solicitor; Benjamin H. Steele, superintendent public buildings; William S. Barbour, city engineer; Lothrop J. Cloyes, chief of police; Thomas J. Casey, chief of fire department; John McSorley, superintendent of streets; Joshua G. Gooch, Joseph Whittemore, Andrew J. Green, principal assessors; B. Otis Danforth, superintendent of lamps; William J. Marvin, bridge commissioner; Francis Cogswell, superintendent of schools; Martin L. Eldridge, warden of almshouse; Charles S. Childs, superintendent of cemetery; Hiram Nevons, superintendent of water works; John L. Harrington, assistant superintendent of water works; Walter H. Harding, water registrar; Henry P. Walcott, city physician; Alfred F. Holt, health officer; Lewis L. Bryant, assistant city physician; Edwin C. Brooks, pumping engineer; Leander Greely, commissioner of Harvard Bridge; N. Henry Crafts, engineer; David P. Muzzey, secretary of the board of overseers of the poor; Charles E. Whitin; Rev. Francis G. Peabody, D. D.

MEMBERS OF LEGISLATURE OF 1884.

William A. Bancroft, George D. Chamberlain, Lewis W. Howes, George C. Bent, Jeremiah W. Coveney, Senator Henry H. Gilmore.

MEMBERS OF LEGISLATURE OF 1887.

Solomon S. Sleeper, George A. Perkins, C. G. H. Bennink, John T. Scully, Charles W. Henderson, Isaac S. Pear, Horace G. Kemp, Senator Alpheus B. Alger.

PUBLISHERS CAMBRIDGE NEWSPAPERS.

William B. Howland, *Tribune;* F. Stanhope Hill, *Chronicle;* James Cox, *Press;* D. A. Buckley, *News.*

REPRESENTATIVES OF THE BOSTON PRESS.

C. O. T. Stevens, Boston *Herald;* John W. Kelly, Boston *Globe;* F. J. Caulkins, Boston *Advertiser;* C. B. Seagrave, Boston *Journal.*

WALTHAM CITY COUNCIL.

Mayor Hon. Henry N. Fisher, Aldermen Charles P. Bond, Ralph S. Wentworth, John J. Harvey, John Handrahan, John E. Soper, Elias B. Armstrong, George B. Moore, George S. Alden, Henry A. Caswell, John J. Fahay, Horatio N. Allen, Mahlon R. Leonard, Milton H. Stevens, Hiram Weeks, Samuel Green, Charles H. Moulton, Henry Bond, Charles W. Durgin, Murray D. Clement, Samuel E. Clark, William C. Hayes, Thomas E. Harvey.

WESTON SELECTMEN.

Henry J. White, Samuel H. Warren, Arthur L. Coburn.

WATERTOWN SELECTMEN.

Charles Brigham, Edward F. Porter, Hiram D. Skinner.

LINCOLN SELECTMEN.

Samuel Hartwell, Edward C. Foster, George F. Harrington.

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# STONY BROOK.

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## The Water Works Celebration Last Saturday—A Pleasant Day, a Good Dinner and some Lively Speeches.

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The celebration of the completion of Stony Brook water supply, last Saturday, passed off as successfully and pleasantly to the limited number engaged in it as any one of them had anticipated. The day was a fine autumn specimen, a trifle cold for barge-riding, but exhilarating and on the whole not unsuited to the occasion. The guests of the day numbered nearly one hundred. Five barges and a stage-coach conveyed the party from the City Hall to Fresh Pond soon after nine o'clock. After a brief stop at the pumping station to take on a Waltham delegation, the procession passed up Concord Avenue to the upper entrance to that drive. They drove around the north and west side of the pond to the south cove, where all alighted to witness the turning on of the water from the Stony Brook inlet. With a simple, "This is the day we long have sought, and mourned because we saw it not," by President Kingsley, the water was sent through the pipe into the shallow basin, and in time flowed to meet the low water in the pond. The fountain-like contrivance on the end of the pipe which was alluded to last week, worked to a charm, and made the inflow of water, which otherwise would have been a tame affair, a sight worth seeing. A foaming stream, fully twenty-five feet, was thrown into the air. Considerable sport was created by the scramble of the ever-present small boys for a number of eels which were emitted through the pipe. Owing to the shallow water it was possible to catch them, but it took a pretty smart boy to do it. or to hold them after they were caught.

After the turning on of the water, barges were again taken for the pumping station, where a lunch of sandwiches and coffee was served. After the lunch, the marble tablet, before described, was unveiled by President Kingsley, who offered a few brief remarks in that connection. Proceeding next to Fresh Pond depot, near the pumping station, a special train was taken for Robert's crossing, from which the party proceeded mostly afoot to the Stony Brook dam. After a half-hour's inspection, barges were again taken for the Woodland Park Hotel, Auburndale, where an excellent dinner was served. Hon. J. M. W. Hall presided at the post-prandial exercises. The following toasts were given and were eloquently and wittily responded to :

Our beloved city—may her influence ever be for what is pure and healthful in all that concerns the well-being of her citizens—a fountain from which all may drink ; responded to by Mayor Russell.

Harvard College—almost a twin sister, she supplies us with pure learning. If in no other way we can express our gratitude, we will by keeping her supplied with pure water, good streets, good lights and a good police force for her students ; responded to by Rev. Prof. F. G. Peabody.

Senator C. O. Whitin of Whitinville told of his interest in behalf of Cambridge's water bill and his high regard for Mr. Kingsley.

Our younger sister, the city of Waltham—may the pure and abundant water which she sends us be the symbol of the reciprocal relation which will always be mutually encouraged and maintained ; Mayor H. N. Fisher.

Our city government—may our citizens ever be ready to serve the city as faithfully and satisfactorily as the present council ; Alderman J. J. Kelley, chairman committee on water supply.

Our Water Board—realizing the fact that "no license" prevails in our city, they are determined to furnish our citizens with a more abundant supply of pure water ; responded to by C. W. Kingsley.

Watertown—our guest—a stanch and true friend, the best Watertown we know ; we extend the right hand of fellowship on this occasion ; responded to by Mr. Porter.

The town of Lincoln—its long history is filled with records of the patriotism and high morality of its citizens. May it ever be as renowned in keeping all contamination from the source of our water supply, as it has been in keeping its children from all evil surroundings.

Weston—may the new and intimate relations which we now sustain, through the Stony Brook supply, flow on like that stream, deeper and better.

The law—it came before the gospel ; we obtained first the law of protection to our water interests and then the gospel of a good water supply ; responded to by C. J. McIntire, Esq., city solicitor.

The product of the law—the lawyers. Endeavoring to steer between the two, we look to the Superior Court; responded to by Judge Hammond.

Our veterans—they shed their blood like water, but no water was in their blood. It was true blood and true blue ; responded to by Gen. E. W. Hincks.

Our Common Council—an uncommonly good one—we say to them for 1888, "Come again ;" responded to by President J. H. Corcoran.

Mr. W. S. Barbour, city engineer, was called upon, and made a statement of the scientific principles of the dam.

The water supply committee—may their shadow never be less; responded to by F. H. Teele, Esq., of that committee.

Stony Brook supply—a monument of engineering skill in its construction. May its lines ever be true and strong, and its reserve force ever be equal to our largest demand; responded to by Mr. W. L. Barbour, city engineer.

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**Mayor Russell's Speech.**

Of the many occasions, Mr. Chairman, when it has been my privilege to respond for our good city, whom we all love almost as a mother, I never have done so with more pleasure than today, when she celebrates her gift of another blessing to all her children. She has felt their suffering; she has seen their need; and with fidelity, and energy, and enterprise, well has answered it, "casting her bread upon the waters, where she shall find it—even after many days." Old Fresh Pond, that has been giving to us almost of her life-blood, feels today the impulse of renewed vigor, and knows that in her days of exhaustion and seeming old age, there stand behind her the hills of Weston, from whose gentle slopes the rains of Heaven shall flow to give her unfailing strength and perennial youth. "The springs of the hills have come unto us to refresh us."

We celebrate the completion of a work begun under the pressure of a necessity that no longer could be resisted. Year after year we had anxiously watched our water supply gradually, but surely, diminishing; and we had faced the terrible possibility of its failure. Various expedients had been resorted to; extra pumps had been used to follow the falling waters; and other measures of doubtful success had been adopted. Finally, it became no longer a matter of doubt that the best, cheapest, and most certain remedy was to grapple with the question in a comprehensive way, and settle it, not for one nor for five, but for fifty years. We looked about for "the water brooks the hart panteth after," and after some reverses, found in Stony Brook an abundant, unused supply that would answer our need without encroaching, we believe, on the rights of a neighbor. The health, comfort, and prosperity of sixty thousand people demanded that those waters no longer should run to waste.

The power of the State was invoked, and, after discouraging defeat, our need was appreciated. In 1884 the legislature granted our city the right to gather up the wasting waters, and turn them to the use of man. Soon after the City Council passed the necessary appropriations, and the Water Board commenced the work. For nearly three years, the labor has continued unceasingly, till today we may fairly say it stands accomplished. Abundant pure water is secured for more than a generation, and for more than treble our present population.

And what a grand work it is! Judged as an engineering feat, or by its cost, or by the labor involved, or, best of all, by its use and benefit to meet the present need of all our citizens, and the wants of generations yet unborn — it stands forth conspicuously as one of the greatest works

our city has ever undertaken. It insures comfort to the humblest citizen, as well as prosperity to the largest industry. It enters into every household, giving, like rays of sunshine, its blessing everywhere.

While today, sir, we rejoice in the completion of a work so great and lasting in its benefits, it is fitting that, speaking for the city, I should express her thanks and gratitude to those whose labors have contributed to its success: First to all her faithful representatives, whose perseverance and able advocacy convinced a doubting house, snatched victory from defeat, and gave the sanction of the Commonwealth to our enterprise; next to the City Council, that promptly added its sanction, and has cheerfully furnished the means to carry on the work; next to the Water Board, and especially its able, faithful president, who with patience and energy have discharged the heavy burden and responsibility of planning and directing the work in all its details. Nor should we forget the men upon whom the real work has fallen. I offer the thanks of the city to our engineer and his assistants, and to our superintendent for the skill, ability, zeal and good judgment with which they have carried out the plans of the board. And last, but not least, in her name, I thank the hundreds of humble, honest toilers, whose constant, patient labor, whose brawn and muscle have made the project an accomplished fact.

Beyond our city and its citizens, there are other places whose courtesy and assistance we gratefully remember. Against their will, we came into the city of Waltham, and the towns whose presence grace our board today. They fought us bitterly, when we asked the legislative sanction, but fairly, frankly, honorably. There the fight ended. With magnanimity and unselfishness, they have placed no obstacles in our path, but have stood ever ready to make our path clearer, and our task easier. They have proved that town and city lines do not separate men into hostile interests; that kindness and courtesy can easily extend beyond them, and that we are all bound together by mutual desire to help each other, and so help all. Cambridge gladly acknowledges the obligation that she owes, and most earnestly wishes that our pleasant neighborly relations may never be disturbed.

Mr. Chairman, our work shows the power of a great city, the union of all for the benefit of all. Remembering its power, remembering its grand influences that make for good, its churches, its schools, and its charities; how closely it binds us all together in mutual sympathy and suffering in mutual help and rejoicing, I believe it to be true that the life of a great city is the best illustration of the highest civilization of this civilized age. May I wish, in closing that in such things Cambridge may always lead, may never step backward; and this work today finished, may bring to each and all of her citizens renewed health, happiness and prosperity.

### President Kingsley's Speech.

For my part of the exercises of today, it seems to me I cannot do better than to put before you some facts about the history of our water works not generally known by our people, but which will be of interest at the present time, and valuable for future reference; I will therefore proceed to give you some facts about the water works:

1st. "The Cambridgeport Aqueduct Company," was chartered April 13, 1837, and "William Fiske, Aaron Rice and John Skinner and their associates" were the incorporators. They were empowered to lay and maintain pipes or aqueducts from the spring or springs of water in land formerly of Jonathan Ireland, at or near Prospect Hill in Charlestown, into and through the town of Cambridge and provision was made for putting in fire plugs for the use of Charlestown and Cambridge, free of expense, for the use of the water for putting out fires, and for the sale of water. The capital authorized was $30,000. These springs were in what is now the city of Somerville, and for some twenty years was all the public water supply in the city of Cambridge; but the city grew and the need for water increased.

2d. May 20, 1852, Estes Howe, Gardiner Green Hubbard and Moses M. Rice and their associates were incorporated under the name of Cambridge water works, for the purpose of "supplying the city of Cambridge with water." They were authorized to have a capital of $500,000 and hold real estate of the value of $100,000. The city of Cambridge was authorized to "purchase the property of the corporation at any time, at a price agreed upon, or as fixed by commissioners appointed by the Supreme Judicial Court." There was no provision in the charter for taking water from any place.

3d. May 11, 1853, the city of Cambridge was authorized to subscribe for any portion of the stock of the Cambridge Water Works, or to loan money to the company on pledge of their stock. Nothing seems to have been done by the company except preliminary work, until 1856, when we find,

4th. "An act concerning the Cambridge Water Works" was passed and approved June 6, 1856, authorizing the company to take the waters of Fresh Pond for the purpose of supplying the inhabitants of Cambridge with soft water, and by erecting dams at the outlet of Little and Spy Ponds, turn the surplus overflow from these sources into Fresh Pond. They were authorized to dig up the streets, lay pipes, and do all other things necessary to distribute the water through Cambridge. The act was to take effect upon the approval of a majority of the legal voters of the city of Cambridge at a meeting to be called for that purpose. The meeting was called and the act approved Nov. 4th, 1886, by a vote of 791 to 20 and soon after work was commenced by the company by building a reservoir, placing steam-pumps on the border of the pond, and completing the connection between them, and supplying the people from the reservoir as fast as the pipes were laid, and thus was practically begun the work on the present Cambridge water works.

5th. By an act approved Jan. 31, 1861, the Cambridge Water Works were authorized to purchase the Cambridge Aqueduct Company and all its corporate property, rights and privileges This was done and then,

6th. An act was passed by the legislature and approved April 25, 1865, authorizing the city of Cambridge to purchase all the works, franchises, rights and property of the Cambridge Water Works, including the Cambridgeport Aqueduct Company, and thereafter to construct all the necessary works to carry into effect the purpose of supplying the inhabitants of Cambridge with Fresh Pond water. The purchase was made after submitting the matter to a vote of the people. The price paid was

$291,400, and this price did not pay the stockholders of the company back the amount they expended on the works. The company did not have the necessary means to prosecute the work to a successful issue, and were glad to turn it over to the city at that price. There was a great deal of discussion among our citizens about whether it was wise for the city to make this purchase, and assume the necessary expense to satisfactorily complete the works and properly supply the inhabitants with water. Some thought it would be a place where jobs would be put up to defraud the city, others thought it would be made a political football, while others still thought it would run the city in debt, and prove to be for the city what it had been for the stockholders of the company, an unprofitable investment. For this reason, it was provided that after purchase a separate account should be kept of the water works, so that all might know the result; this result will be found later on in the statement of our financial condition. From this time the work was vigorously pushed, and to meet the necessary expenses, about $500,000 authorized at the time of the purchase, we find it was limited to six per cent interest and not to be sold below par. Money was scarce, so,

7th. An act approved March 21, 1866, authorized the city council to sell the scrip and bonds of the city, or pledge them for money borrowed, on such terms as the city council may deem proper. This loan having been nearly exhausted we find,

8th, By an act of the legislature, approved February 17, 1868, the city was authorized to issue an additional amount of bonds, not exceeding $500,000, bearing interest not exceeding six per cent, on time not exceeding fifty years, to be disposed of on such terms as the city council may deem proper.

9th. By an act of the legislature, approved March 28, 1872, the city was authorized to issue an additional amount of bonds, not exceeding $500,000, on the same terms as the last issue authorized.

10th. By an act of the legislature, approved April 20, 1875, the city was authorized to issue an additional $500,000 of bonds on the same terms.

11th. By an act approved May 1, 1875, the city was authorized to take the waters of Spy and Little Ponds and Wellington Brook for an additional water supply, and also to take and hold by purchase or otherwise such land on and around the margin of Fresh Pond, not exceeding five rods in width, as may be necessary to preserve the purity of the water in the pond, and the same power in regard to Spy and Little Ponds. Several takings under this act have been made around Fresh Pond, but the water of Spy Pond having been condemned by a commission of experts appointed by the city council, no water from that source has been used. The owners of land around Spy Pond complained that our right to take five rods was an encumbrance on their land. Without opposition from us it was provided,

12th. By act approved April 7, 1880, that our right to take a strip around Spy Pond should be revoked. A connection was made with Wellington Brook and a filter basin on the border of Little Pond, and water taken from these sources into Fresh Pond when the ground was frozen, and the melted snow water was running. It is upon this source of supply that we have relied for the past ten years to replenish our pond

in the springtime, and eke out our scanty supply from the pond itself. It having become evident that this water supply was becoming altogether inadequate, application was made in 1881, 1882 and 1883 for the right to procure water from Shawsheen River. All these petitions were denied to us, and in the year 1884 a petition was made to the legislature for the right to take the water of Stony Brook. After a long and persistent contest it was granted,

13th. By an act of the legislature approved May 21, 1884, in which the city of Cambridge was authorized to take the waters of Stony Brook and the tributaries thereof, for the purpose of extinguishing fires and for domestic and other purposes, and convey the same by way of Fresh Pond or otherwise to the city of Cambridge. With this act, all the powers necessary were granted for purchasing or taking lands, for laying pipes, constructing reservoirs, storage basins, dams and other works that may be necessary or proper for collecting, purifying, storing, conducting and distributing the waters thereof. This act of the legislature was accepted by the City Council, and in July, 1884, the City Council made an appropriation to enable the Water Board to proceed with the work of laying the pipes to connect Stony Brook with Fresh Pond. Surveys and soundings for the dam at Stony Brook and the storage basin were made and a contract made for the iron pipe and special castings that were needed. The work of laying the pipe was commenced at Fresh Pond in February, 1885, and was prosecuted with vigor under our superintendent until completed. Only one section of about two miles was done by contract. The rest, of nearly six miles, was done by the day, the work being done by Cambridge men.

The contract for building the dam and storage basin at Stony Brook was awarded in the spring of 1885. Our first contractors backed out and left the work. The work was contracted a second time, and work commenced by Messrs. Henry H. Pike & Son in September of that year, and their work was not completed until October of the present year. It has been a long and somewhat more expensive job than we anticipated at the first. We estimated that the cost complete would be $500,000, and just about that amount has been expended up to this time. A very considerable sum has been expended around the borders of Fresh Pond, in grading and riprapping the shores of the pond to make it a proper reservoir to receive and hold our water from Stony Brook. The result of our work in that direction you have all seen today. We have yet to hear anything but praise and commendation from any of our citizens, in reference to the work done around Fresh Pond.

So far as our water supply is concerned, the work is now substantially completed. You have today seen the water let on, and we trust that fountain will not cease to flow until our beautiful reservoir is once more filled up to the brim, an event which has not occurred for more than ten years past. I have thus endeavored to give you a brief and concise history of the Cambridge Water Works to the present time, touching only the salient points in its development. To go more into detail would weary you, as you may well know, when I state that I have in bound volumes in my library more than 4,000 pages of printed matter about our Water Works.

There now remains for me only to give you a brief statement of our

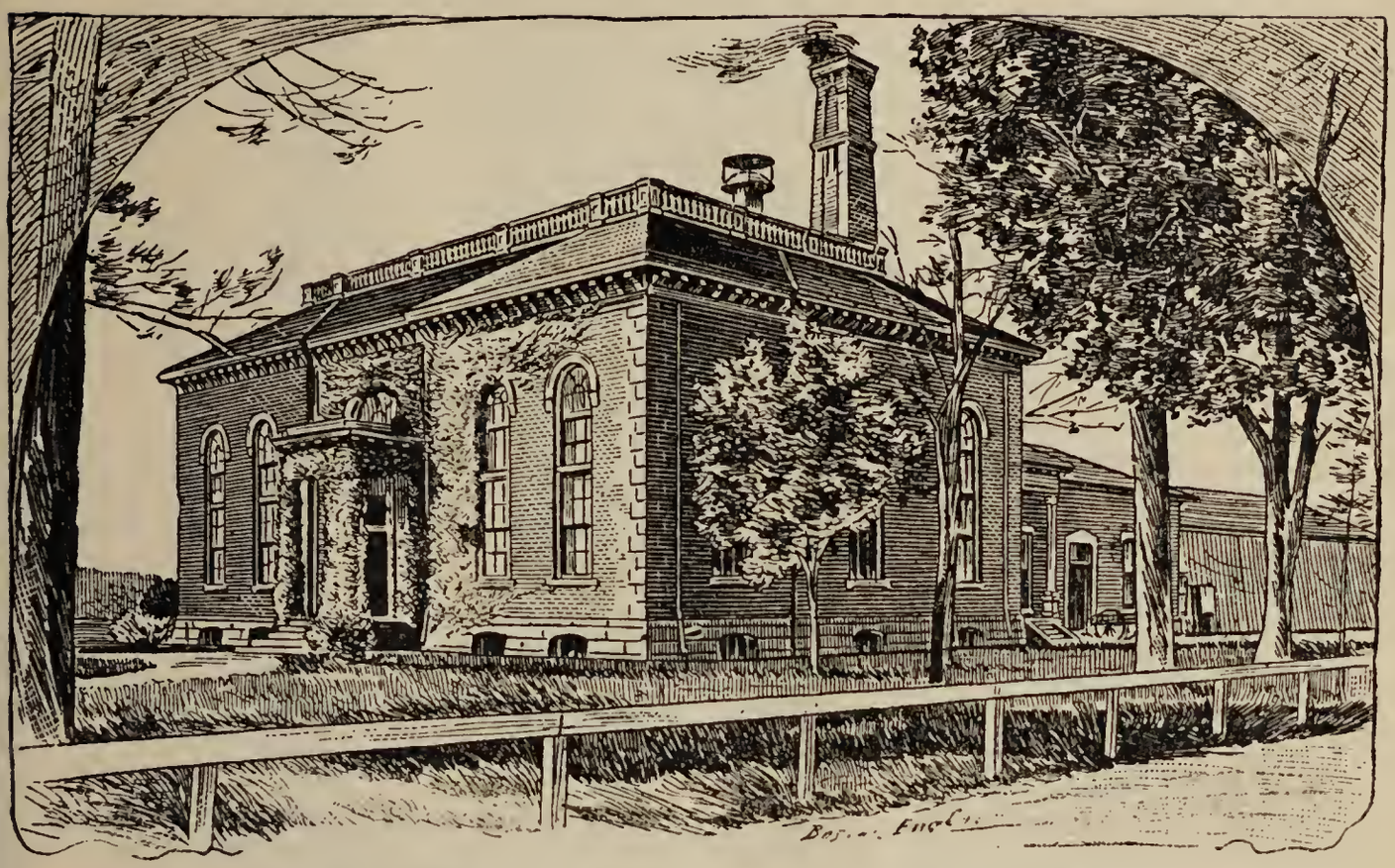
financial history. As the accounts for this year are not made up, I will take the statement made November 30, 1886, as a basis, and add to this, estimates which will not be very far from correct.

| | | |
|---|---|---|
| Total cost of the works Nov. 30, 1886 | | $2,294,043 39 |
| Estimated amount yet to be added | | 405,956 61 |
| Estimated total cost, completed | | $2,700,000 00 |
| Amount of this paid in bonds by the sinking fund to Nov. 30, 1886, as per treasurer's report | $391,400 00 | |
| Value of sinking fund Nov. 30, 1886, per commissioner's report | 892,005 97 | |
| | | 1,283,405 97 |
| Estimated cost of the water works, net | | $1,416,594 03 |

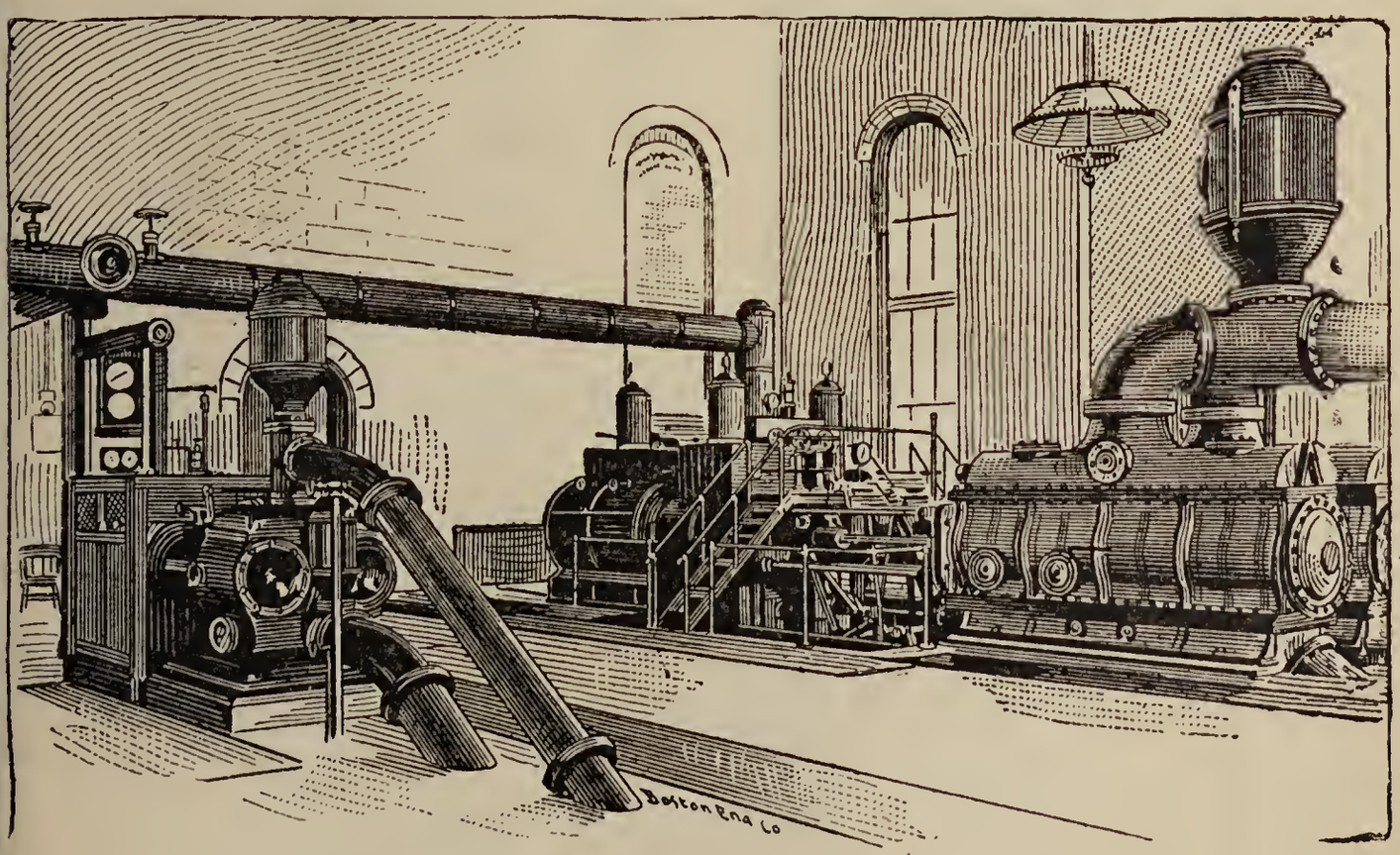
In this estimate has been added the work to be done around Fresh Pond, from time to time. We think it can be demonstrated, if the same management of the Water Works is continued for the next twenty years, that all needed additions and improvements can be made and paid for, and at the same time all outstanding bonds paid, and at the end of that time the city will own its Water Works paid for, and with an annual income therefrom, after furnishing her citizens with water at the lowest current rates, of not less than $250,000.

In all our work we have had the hearty coöperation of the City Council, who have only needed to see the importance of what the Water Board recommended, when they cheerfully made the necessary appropriations to carry it out.

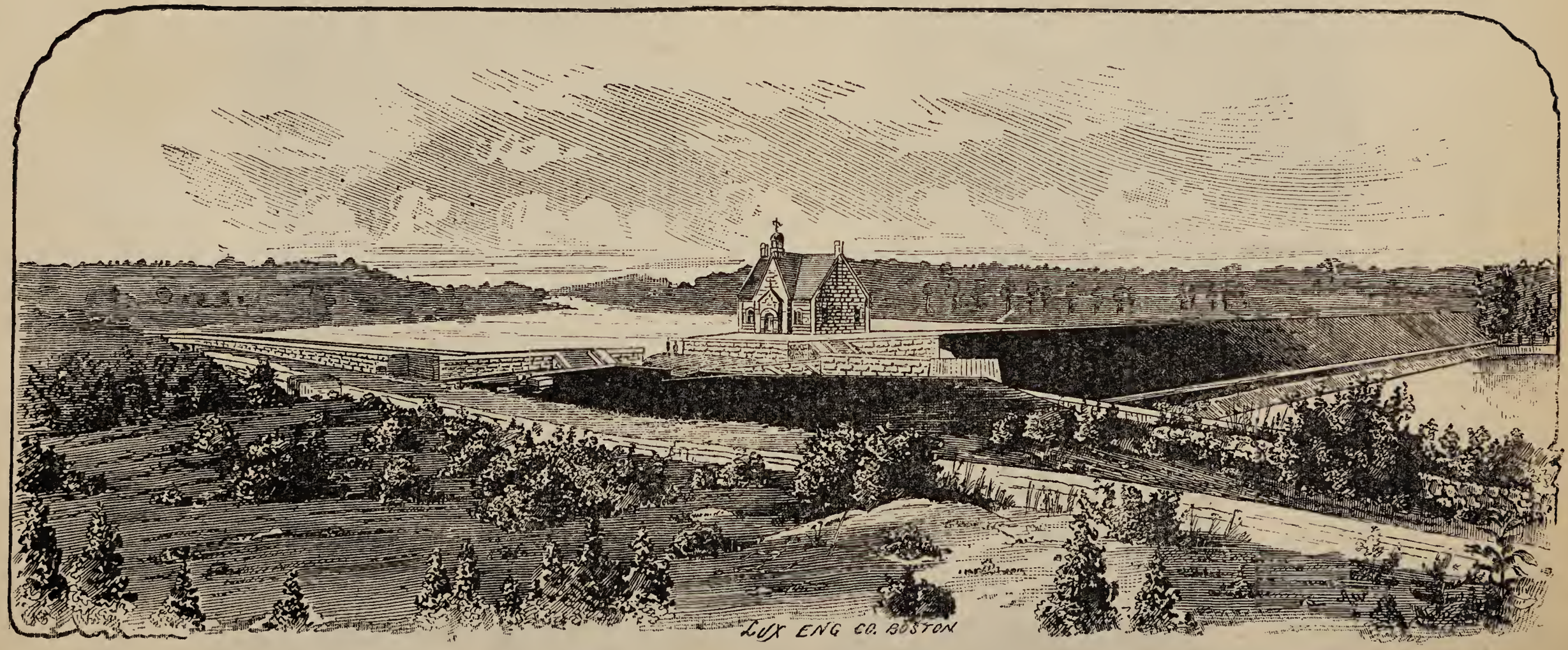
**Chester W. Kingsley, President of the Cambridge Water Board and member of the Water Board since 1865, when the City bought the Water Works, and the Board was organized.**



**Exterior View of the Fresh Pond Pumping Station, foot of Lake View Avenue.**



**Interior of Pumping Station at Fresh Pond, showing Tablet.**




**General View of Stony Brook Basin, showing the Dam, Abutments and Gate House.**

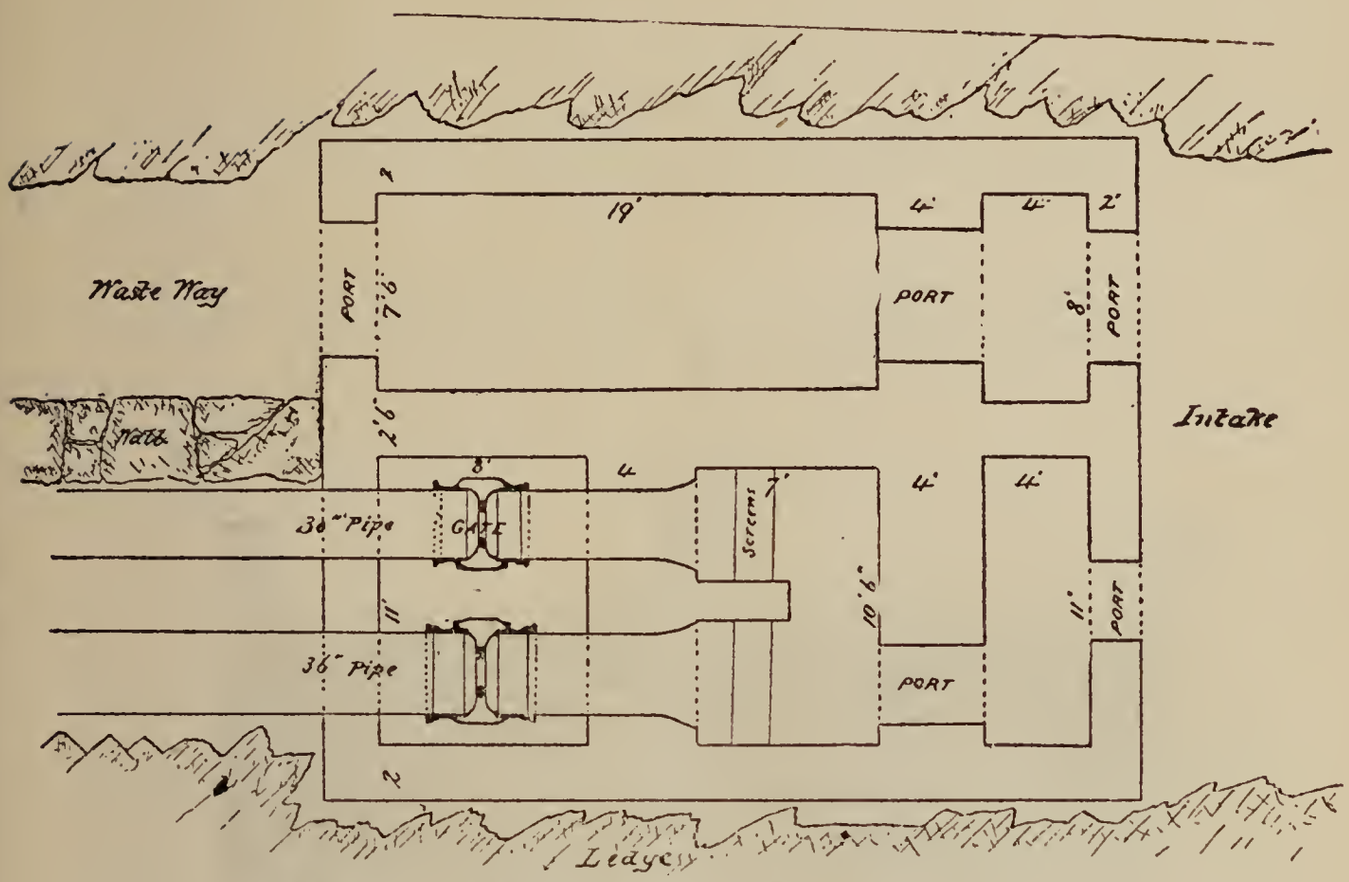
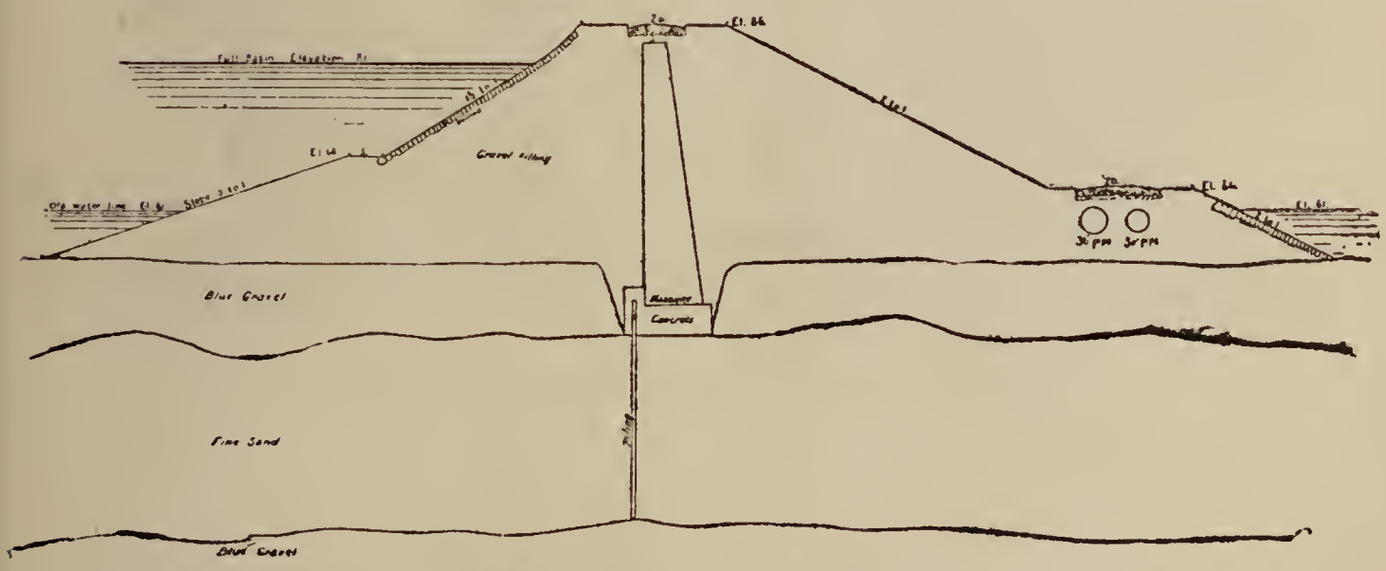



**Diagram of the Chambers of the Gate House.**




**A Sectional View of the Stony Brook Dam and Core Wall.**

**Front View of Gate House at Stony Brook.**

# REPORT

OF THE

# WATER REGISTRAR.

---

WATER REGISTRAR'S OFFICE,
CAMBRIDGE, Dec. 10, 1887.

*To the Cambridge Water Board :—*

IN compliance with the requirements of the City Ordinance, I present the twenty-third annual report of the operations of this department, showing the receipts, expenditures and abatements, together with a statement of the number of water takers, fixtures, etc., for the year ending Nov. 30, 1887.

Amount of bills remaining unpaid Nov. 30, 1886 :—

| | |
|---|---|
| Water Rates | $65 90 |
| Meter Rates | 258 20 |
| Supplies and Repairs | 1,380 78 |

Amount of bills placed in hands of City Treasurer for collection from Nov. 30, 1886, to Nov. 30, 1887 :—

| | | |
|---|---|---|
| Water Rates | $166,734 07 | |
| Meter-rates | 44,423 05 | |
| Supplies and repairs | 5,632 04 | |
| Off and on water, rent, seals and fines | 486 50 | |
| Total bills | | $218,980 54 |

There have been collected :—

| | | |
|---|---|---|
| Water-rates | $206,538 46 | |
| Off and on water, rent, seals and fines | 456 50 | |
| Supplies and repairs | 6,138 99 | |
| Total collections | $213,133 95 | |
| Amounts carried forward | $213,133 95 | $218,980 54 |

| | | |
|---|---|---|
| Amounts brought forward . . . . . | $213,133 95 | $218,980 54 |

There have been abated:—

| | | |
|---|---|---|
| Water-rates . . . . . | $4,305 86 | |
| Supplies and repairs . . . . . | 16 10 | |

There remain unpaid:—

| | | | |
|---|---|---|---|
| Water-rates . . . . . | $262 30 | | |
| Meter-rates . . . . . | 374 60 | | |
| Supplies and repairs . . . . | 857 73 | | |
| Rent . . . . . | 30 00 | | |
| | | $1,524 63 | |
| | | | $218,980 54 |

## Expenditures.

| | | | |
|---|---|---|---|
| Construction account (Stony Brook) . . . . | | $111,363 26 | |
| Construction account (Fresh Pond land purchase) . . . . . | | 11,526 00 | |
| Construction account (general) . . . . . | | 19,563 85 | |
| Maintenance account, viz:— | | | |
| Care and repairs . . . . . | $16,645 03 | | |
| Pumping service . . . . . | 13,138 93 | | |
| New pumping service . . . | 4,694 26 | | |
| Office expenses . . . . . | 3,132 40 | | |
| | | $37,610 62 | |
| Supply and repair account . . . . . | | 4,714 05 | |
| Total . . . . . | | | $184,777 78 |

## Abatements.

| | | |
|---|---|---|
| Water-rate bills to the amount of . . . . . | $4,305 86 | |
| Supply and repair bills to the amount of . . . | 16 10 | |
| Total . . . . . | | $4,321 96 |

## Refunds.

| | | |
|---|---|---|
| Water-rates to the amount of . . . . . | $1,789 82 | |
| Which amount deducted from receipts . . . . | 206,538 46 | |
| Leaves net receipts for water . . . . . | $204,748 64 | |
| Add off and on water, rent, seals and fines, . . | 456 50 | |
| Makes net receipts of rates, fines, etc. . . . . | | $205,205 14 |

### Off and On.

Water has been shut off for non-payment of rates, or per order on account of vacancy, and seals have been applied to fixtures by request of owners or occupants as follows :—

| | |
|---|---|
| Supplies shut off in 1887 | 422 |
| Supplies let on, shut off in 1887 | 300 |
| Supplies let on, shut off in previous years | 61 |
| New supplies let on | 345 |
| Seal-locks applied to fixtures in 1887 | 389 |
| Seal-locks removed, put on in 1887 | 178 |
| Seal-locks removed, put on in previous years | 134 |

Statement of the yearly revenue received from water-rates since the purchase of the Works by the city :—

| | | | | |
|---|---|---|---|---|
| From April 28, 1865, | to | Dec. 1, 1865 | | $32,367 19 |
| " Dec. 1, 1865, | " | 1, 1866 | | 40,073 27 |
| " " 1, 1866, | " | 1, 1867 | | 52,733 62 |
| " " 1, 1867, | " | 1, 1868 | | 63,747 42 |
| " " 1, 1868, | " | 1, 1869 | | 76,149 30 |
| " " 1, 1869, | " | 1, 1870 | | 92,606 95 |
| " " 1, 1870, | " | 1, 1871 | | 111,782 65 |
| " " 1, 1871, | " | 1, 1872 | | 127,201 30 |
| " " 1, 1872, | " | 1, 1873 | | 146,117 32 |
| " " 1, 1873, | " | 1, 1874 | | 153,634 27 |
| " " 1, 1874, | " | 1, 1875 | | 138,880 37 |
| " " 1, 1875, | " | 1, 1876 | | 179,166 76 |
| " " 1, 1876, | " | 1, 1877 | | 154,843 59 |
| " " 1, 1877, | " | 1, 1878 | | 157,443 91 |
| " " 1, 1878, | " | 1, 1879 | | 164,681 90 |
| " " 1, 1879, | " | 1, 1880 | | 173,325 49 |
| " " 1, 1880, | " | 1, 1881 | | 170,062 73 |
| " " 1, 1881, | " | 1, 1882 | | 177,430 80 |
| " " 1, 1882, | " | 1, 1883 | | 179,361 89 |
| " " 1, 1883, | " | 1, 1884 | (10 months) | 161,526 27 |
| " " 1, 1884, | " | 1, 1885 | | 185,544 36 |
| " " 1, 1885, | " | 1, 1886 | | 199,404 43 |
| " " 1, 1886, | " | 1, 1887 | | 204,748 64 |

By request of the City Council, the charges for water for fire hydrants, school houses, public buildings, etc., amounting to $10,000.00, were abated for 1887, and the comparatively small gain in receipts in 1887 over the preceding year is due to the loss of the receipts from these sources.

# Comparative Statement.

| | 1886. | | 1887. | |
|---|---|---|---|---|
| **Construction Acc't (Stony Brook).** | | | | |
| RECEIVED. | | | | |
| From bonds issued (par value) | $125,000 00 | | $95,000 00 | |
| From premium on bonds | 322 50 | | 812 50 | |
| Sale of wood at Roberts basin | 78 75 | | | |
| Sale of tickets, Boston and Roberts | | | 42 00 | |
| Allowance made by R. D. Wood & Co. for cracked and light pipe | | | 287 22 | |
| Balance of Appropriation | 15,443 63 | $140,844 88 | 18,192 46 | $114,334 18 |
| EXPENDED. | | | | |
| Sundry bills | $122,652 42 | | $111,363 26 | |
| Balance of bonds issued | 18,192 46 | $140,844 88 | 2,970 92 | $114,334 18 |
| **Construction Acc't (Fresh Pond Land Purchase).** | | | | |
| RECEIVED. | | | | |
| From bonds issued (par value) | $90,000 00 | | | |
| Sale of old material | 2,750 00 | | | |
| Balance of appropriation from 1886 | | | $28,020 20 | |
| From premium on bonds | | $92,750 00 | 112 50 | $28,132 70 |
| EXPENDED. | | | | |
| Purchase of sundry estates, examination of titles, etc | $64,729 80 | | $11,526 00 | |
| Balance of appropriation | 28,020 20 | $92,750 00 | 16,606 70 | $28,132 70 |
| **Construction Acc't (General).** | | | | |
| RECEIVED. | | | | |
| From bonds issued (par value) | $18,000 00 | | | |
| From premium on bonds | 232 20 | | | |
| Refund of overcharge | 1 50 | | $7 50 | |
| From excess of receipts from rates, fines, etc | 1,048 98 | $19,282 68 | 19,556 35 | $19,563 85 |
| EXPENDED. | | | | |
| Sundry bills | | $19,282 68 | | $19,563 85 |
| **Maintenance Account.** | | | | |
| RECEIVED. | | | | |
| Accrued interest on Water Bonds | $135 90 | | $172 22 | |
| Sale of horse | | | 100 00 | |
| American Rubber Co. | | | 751 69 | |
| Rates, fines, etc | 199,829 33 | | 205,205 14 | |
| Duplication of names on pay-roll—amount covered back into treasury | | $199,965 23 | 9 50 | $206,238 55 |
| EXPENDED. | | | | |
| Care and repairs | $29,858 33 | | $37,610 62 | |
| Interest on Water Debt | 99,015 00 | | 97,355 00 | |
| Paid to Sinking Fund Commisoners | 57,675 00 | $186,548 33 | 51,465 00 | $186,430 62 |
| Excess of receipts | | $13,416 90 | | $19,807 93 |
| **Supply Account.** | | | | |
| Received | | $7,273 43 | | $6,138 99 |
| Expended | | 5,943 62 | | 4,714 05 |
| Excess of receipts | | $1,329 81 | | $1,424 94 |

| | | |
|---|---|---|
| 1886. | Maintenance Account, excess of receipts | $13,416 90 |
| | Supply Account, excess of receipts | 1,329 81 |
| | Excess of total receipts over total expenditures | $14,746 71 |
| | Expended on Construction Account (general) | 1,048 98 |
| | Balance due Sinking Fund | $13,697 73 |
| 1887. | Maintenance Account, excess of receipts | $19,807 93 |
| | Supply Account, excess of receipts | 1,424 94 |
| | Excess of total receipts over total expenditures | $21,232 87 |
| | Expended on Construction Account (general) | 19,556 35 |
| | Balance due Sinking Fund | $1,676 52 |

The excess of receipts for 1887, as shown in the above comparative statement, amounting to $1,676.52, has been carried to the Sinking Fund, as required by law.

Beside the manufactories, etc., supplied by meter, water is now supplied to 13,677 families, 843 stables, with 2,482 horses, and 242 cows, 243 shops, 457 offices and stores, by the following fixtures, viz:—

| | |
|---|---|
| 16,366 faucets, | 13 hopper-closets, |
| 4,454 wash-basins, | 92 urinals, |
| 3,041 wash-tubs, | 44 yard hydrants, |
| 2,633 bath-tubs, | 4 fountains, |
| 7,342 pan-closets, | 4 tumbler-washers, |
| 847 slop-closets, | 1,316 hand-hose. |

Also,

620 fire-hydrants, (beside 4 on private premises),
8 fire-reservoirs,
16 drinking-fountains in public squares.

The above is exclusive of the school houses, engine houses, police-stations and other city buildings.

The customary house to house inspection has been made, and considerable waste of water stopped as well as many charges for water-rates made for fractional parts of the year.

I would recommend the appointment of a second inspector, whose duty should be to look after outside business exclusively. The office work has increased in the last ten years 37 per cent, and within the past year the force to do the work has been decreased. As now arranged, the present Inspector is obliged to give a large part of his time to office work, and as the business of the office is rapidly increasing, his services for the coming year will be required almost constantly in the office. A competent man can earn for the city more than his salary as Inspector by picking up charges of water-rates, besides which he could maintain an almost constant lookout for waste of water, and should inspect (as the superintendent might direct) the various fire-pipes, to see that they were in proper condition.

Respectfully submitted,

WALTER H. HARDING,
*Registrar.*

# REPORT

OF THE

# COMMITTEE ON ACCOUNTS OF THE CAMBRIDGE WATER BOARD.

---

We have examined the abstract of accounts as presented to us by the Water Registrar, covering the records of the past year. We have compared it with the statements submitted to us by the City Treasurer and Auditor, and we find them to be correct and in agreement. Annexed is the financial statement, in brief, presented to us by the Water Registrar, and verified by us:—

| | | |
|---|---|---|
| Amount of bills in hands of City Treasurer, November 30, 1886:— | | |
| For water-rates | $324 10 | |
| For supplies and repairs | 1,380 78 | |
| | | $1,704 88 |
| Amount of bills delivered to the City Treasurer for collection during the year ending Nov. 30, 1887:— | | |
| For water-rates | $166,734 07 | |
| For meter-rates | 44,423 05 | |
| For supplies and repairs | 5,632 04 | |
| For off and on, rent and seals | 486 50 | |
| | | $217,275 66 |
| Total bills | | $218,980 54 |
| Of these amounts the Treasurer reports as collected, | $217,455 91 | |
| Less refunded | $1,789 82 | |
| Less abated | 4,321 96 | |
| | $6,111 78 | |
| Total net collections | $211,344 13 | |
| Add refunded and abated, as above | 6,111 78 | |
| Balance uncollected, Nov. 30, 1887 | 1,524 63 | |
| | | $218,980 54 |

JAS. M. W. HALL,
WM. E. RUSSELL,
JOHN H. CORCORAN,
} *Committee on Accounts.*

Cambridge, Dec. 1, 1887.

CITY OF CAMBRIDGE,
OFFICE OF CITY TREASURER,
December 1, 1887.

*To the Cambridge Water Board:—*

GENTLEMEN: Understanding that you desire from me figures showing the transactions for the Water rates account and the Supply account, I append the following:

| | |
|---|---|
| Gross collections for account of water works, rates, fines, &c., from Dec. 1, 1886, to Nov. 30, 1887 inclusive, were . | $211,300 82 |
| Abatements allowed on water rates to the amount of . . | 4,305 86 |
| Gross collections for account of water works supply account, were . . . . . | $6,155 09 |
| Abatements allowed on supply account amount to . . . | 16 10 |
| Refund checks paid amounting to . . . . . | 1,789 82 |
| Bills for water-rates uncollected in my hands . . . . . | 636 90 |
| Bills for water-rates, rent account uncollected in my hands | 30 00 |
| Bills for water supply account uncollected in my hands . . | 857 73 |

Respectfully,

WM. W. DALLINGER,
*City Treasurer.*

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CITY OF CAMBRIDGE,
December 12th, 1887.

*To the Committee on Accounts of the Cambridge Water Board:—*

GENTLEMEN: In accordance with your request I present the following statement from my books as of Dec. 1st, 1887.

WATER WORKS (RATES, FINES, ETC.).

| | | |
|---|---|---|
| Amount of uncollected bills in City Treasurer's hands Dec. 1st, 1886 . . . . . | | $324 10 |
| Amount of bills placed in City Treasurer's hands to Dec. 1st, 1887 . . . . . | | 211,643 62 |
| Total . . . . . | | $211,967 72 |
| Amount collected by City Treasurer to Dec. 1st, 1887 . . | | 211,300 82 |
| Amount uncollected in City Treasurer's hands Dec. 1st, 1887 . . . . . | | $666 90 |
| Abatements . . . . . | $4,321 96 | |
| Refunds . . . . . | 1,789 82 | |

WATER WORKS (SUPPLIES).

| | |
|---|---|
| Amount of uncollected bills in City Treasurer's hands Dec. 1st, 1886 | $1,380 78 |
| Amount of bills placed in City Treasurer's hands to Dec. 1st, 1887 | 5,632 04 |
| Total | $7,012 82 |
| Amount collected by City Treasurer to Dec. 1st, 1887 | 6,155 09 |
| Amount uncollected in City Treasurer's hands Dec. 1st, 1887 | $857 73 |

Respectfully submitted,

HARRY T. UPHAM,
*Auditor of Accounts.*

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# ANNUAL STATEMENT OF THE WATER REGISTRAR TO THE COMMITTEE ON ACCOUNTS, DECEMBER 1, 1887.

| | | | |
|---|---|---|---|
| Water-rates unpaid Nov. 30. 1886 | | $324 10 | |
| Bills placed in hands of City Treasurer for collection from Dec. 1, 1886, to Dec. 1, 1887: | | | |
| Water-rates from annual ledger | $151,419 00 | | |
| Water-rates, from fractional ledger, | 15,315 07 | | |
| Water-rates, from meter ledger | 44,423 05 | | |
| Off and on water | 311 00 | | |
| Rent | 78 00 | | |
| Seals | 97 50 | | |
| | | $211,643 62 | |
| Total bills on rates, fines, etc. | | 211,967 72 | |
| Supply and repair bills unpaid Nov. 30, 1886 | $1,380 78 | | |
| Supply and repair bills placed in hands of City Treasurer for collection Dec. 1, 1886, to Dec. 1, 1887 | 5,632 04 | | |
| | | $7,012 82 | |
| Total bills | | | $218,980 54 |
| There has been collected, annual ledger | $148,715 65 | | |
| There has been collected, meter ledger | 43,933 63 | | |
| Amount carried forward | $192,649 28 | | |

| | | | |
|---|---|---|---|
| Amount brought forward . . | $192,649 28 | | |
| There has been collected, fractional ledger . . . . . | 13,889 18 | | |
| There has been collected, off and on | 311 00 | | |
| There has been collected, rent . . | 48 00 | | |
| There has been collected, seals . . | 97 50 | | |
| Total collections, on rates, fines, etc. . . . . | | $206,994 96 | |
| Collections on supply and repair accounts . . . , . . . . | | 6,138 99 | |
| Total collections . . . . . | | $213,133 95 | |
| There have been abated, water-rates | $4,305 86 | | |
| There have been abated, supplies and repairs . . . . . | 16 10 | | |
| | | $4,321 96 | |
| There remain uncollected, water-rates . . . . . | 636 90 | | |
| There remain uncollected, rent . . | 30 00 | | |
| There remain uncollected, supplies and repairs . . . . . | 857 73 | | |
| | | $1,524 63 | |
| | | | $218,980 54 |
| Total collections . . . . . | $213,133 95 | | |
| Less refunds, . . . . . | 1,789 82 | | |
| Total net receipts . . . . . | | $211,344 13 | |

Attest: WALTER H. HARDING,
*Registrar.*

# REPORT

OF THE

# SUPERINTENDENT OF THE WATER WORKS.

---

CAMBRIDGE, NOV. 30, 1887.

*To the President and Members of the Cambridge Water Board :—*

GENTLEMEN : The annual report of your Superintendent upon the condition of the works and the operations of the past year is herein presented.

The total amount of water pumped was 1,409,410,931 gallons. Coal consumed per million gallons pumped, $1,550\frac{57}{100}$ pounds.

Water sold by meter and used for watering streets 362,547,100 gallons ; leaving as the amount for domestic use 1,046,863,831 gallons.

Number of gallons daily for each inhabitant on the whole amount pumped, 5,524 gallons.

Number of gallons daily for each inhabitant on amount for domestic use, 4,103 gallons.

### Spy and Little Ponds, Wellington Brook and Conduit.

The gate houses are in good condition. During the year no water has been drawn through the Conduit from either pond but it has been kept full to Black's Nook, to draft from in case of fire. A 30-in. pipe has been laid from Black's Nook through the dam to Fresh Pond.

### Fresh Pond.

Cambridge Nook has been excavated to grade 7.00, about 64,000 cubic yards of material having been removed. A satisfactory arrangement was made with the Fitchburg Railroad Co. to furnish rails, locomotives and twenty dump-cars for the work; a track was laid, from the Hittinger ice house across the

dam at Black's Nook and along the north shore, to and in Cambridge Nook. By this means nearly all the material was dumped into Black's Nook. The remainder was removed by carts, being used to grade Kingsley Park and the roadway on the east and north sides of Cambridge Nook where the riprapping has been raised to grade 18.00.

Boat-house Nook, from the east side around on the south side to the high bluff, has also been excavated to grade 7.00. All of this work was done with carts and wheelbarrows. Material from the east side was used in filling the low territory back of where the old boat-house formerly stood, this place being now raised to grade 18.00. The remainder was deposited on the south side and back of the roadway.

The City Council having dedicated the old gravel pit (near the Hittinger ice houses) to the use of the water works, a roadway has been laid out 70 ft. wide from Fresh Pond Drive towards Concord Avenue and graded to within 310 feet of the avenue, where it connects with the old road used by the City for carting gravel. As the old road is only 25 ft. wide, a strip of land 50 ft. wide must be purchased or otherwise obtained before the street can be finished of proper width to Concord Ave. When this is done it will complete a continuous driveway from Concord Ave. near the Belmont line, around the Pond to Concord Ave. again near the Boston Ice Co. houses.

Trees have been set out in Kingsley Park and around the Pond.

The low and flaring inlet pipe connected with the Stony Brook supply has been replaced by a straight 30-in. pipe, top at grade 16.00 or high water, fitted with a cap having one 6-in., eight 2-in., sixteen $1\frac{1}{2}$-in. and twenty-four 1-in. nipples, converting the discharge into a fountain of attractive appearance from fifteen to twenty-five feet high. The pipe is protected by large stones laid up around it in conical form.

The roadway around the Pond has been kept in good condition but many improvements are needed to complete it for the popular drive it is destined to become. On the south side at the high bluff it needs widening to 40 ft. with guard-rail and hub-fender on the edge at top of the riprapping to prevent the possibility of driving over the edge of the slopes. Many places will require a coat of gravel in the spring. The gutters at the

Holworthy Street cut should be paved and the slopes sodded to prevent washing.

The grading of Kingsley Park has been completed.

The water in Fresh Pond reached its highest point May 1st, at grade 8.00, and stood at its lowest Nov. 5th at 3.32. At this date water was formerly let on from Stony Brook and the Pond has filled to 6.70 at the present date, a gain of 3.38 ft. in three weeks. To lower the Stony Brook Basin and facilitate the gate-house work, water was wasted through to Fresh Pond intermittently from Sept. 5th to the 29th, raising the water height from 3.52, Sept. 5th to 4.90, Sept. 29th a gain of 1.32 ft.

The ice protections of piling and plank around the gate-house at the auxiliary pumping station have been replaced by stone fountain walls, five feet thick at grade 4.00, battering to two feet thick at grade 18.00. When this had been done the brick walls of the gate-house were taken down and rebuilt on these foundations making the house two ft. longer each way, giving sufficient room to clean the screens without removing them from the house.

### Pumping Works.

Except the sixteen days from May 1st to May 17th, the auxiliary pumps have been run constantly since Oct. 24th, 1886. After about three weeks they may never be needed again.

No repairs have been required on engine-house or coal sheds.

The grounds and Tudor Park have received necessary care.

### Reservoirs.

Slight repairs have been made on the east side of the interior wall and more extensive work must be done early the coming season. The walks have been kept in order and grass cut.

### High Service.

This system continues to work perfectly. No extension has been made.

### Stony Brook Pipe Line.

In testing the line two pipes were burst in Watertown, one near Ætna mill and one on Arsenal street near the lumber yard. These pipes were replaced by new ones. Two leaks were

found in Waltham, one near Frost's coal wharf and one near Loafer's Bridge. This leak was caused by a crack on top of the pipe, near the bell, and was repaired by a set-band around the pipe.

When the water was let on from Stony Brook in September, a leak was found at Holworthy Pond between the cut and the foot of Holworthy street. The pipe at this place was laid on piling which had settled for about 100 ft. in length and about 20 inches at the middle point, drawing out one joint. The pipe was raised to its proper grade and new piles driven to a solid foundation.

### Main Pipe.

Main pipes have been laid in the following streets: — 715 ft. of 4-in. in Appleton St., 115 ft. of 4-in. in Auburn St., 650 ft. of 30-in. through dam at Black's Nook, 6 ft. of 6-in. in Bow and Arrow Sts., 12 ft. of 6-in. in Bolton and Houghton Sts., 5 ft. of 6-in. in Brattle and Fayerweather Sts., 6 ft. of 6-in. in Brattle St. and Fresh Pond Lane, 6 ft. of 6-in. in Brattle St. and Lake View Ave., 7 ft. of 6-in. in Brattle and Larch Sts., 673½ ft. of 4-in. in Brendon St., 318 ft. of 4-in. in Brewster Court, 1 ft. of 4-in. in Brookline and Franklin Sts., 3 ft. of 10-in. in Cambridge St., 3½ ft. of 1½-in. and 223 ft. of 6-in. in Clifton St., 3 ft. of 1½-in. and 228 ft. of 4-in. in Cottage Court, 60 ft. of 6-in. in Crescent Ave., 486 ft. of 6-in. in Cushing St., 2 ft. of 4-in. and 243 ft. of 2-in. in Deacon St., 3½ ft. of 1½-in., 188 ft. of 4-in. and 4 ft. of 6-in. in Dinsmore Court to replace old 1½-in. pipe abandoned, 3 ft. of 1½-in. and 132 ft. of 4-in. in Dudley St., 3½ ft. of 1½-in. and 225 ft. of 4-in. in Green St., 3 ft. of 4-in. in Green and Pearl Sts., 3½ ft. of 1½-in. and 192 ft. of 4-in. in Hammond St., 3½ ft. of 1½-in. and 340 ft. of 8-in. in Harvey St., 3 ft. of 1½-in. and 122½ ft. of 4-in. in Hayes Ct., 70 ft. of 4-in. in Hews St., 2 ft. of 8-in. in Highland St., 3½ ft. of 1½-in. and 211 ft. of 4-in. in Irving Place, 48 ft. of 6-in. in Lambert Ave., 4 ft. of 4-in. in Magazine and Auburn Sts,, 3 ft. of 4-in. in Magazine and Erie Sts., 2 ft. of 4-in. in Magazine and Fairmont Sts., 2 ft. of 4-in. in Magazine and Prince Sts., 3 ft. of 1½-in. and 204 ft. of 4-in. in Magee St., 17 ft. of 6-in. in Main St., 5 ft. of 6-in. in Main and Austin Sts., 3 ft. of 6-in. in Main and Columbia Sts., 6 ft. of 6-in. in Main and Winsor Sts., 566 ft. of 6-in. in Montgomery St., 3½ ft.

of 1½-in and 100 ft. of 8-in. in Ninth St., 76 ft. of 6-in. in North Ave. and Chester St., 16 ft. of 6-in. in North Ave. and Day St., 79 ft. of 6-in. in North Ave. and Dover St., 12 ft. of 6-in. in North Ave. and Spruce St., 20 ft. of 6-in in Oak St. opposite Bolton St., 3 ft. of 3-in in Pearl and Allston Sts., 3 ft. of 6-in. in Pearl and Erie Sts., 2 ft. of 6-in. in Pearl and Hamilton Sts., 3 ft., of 6-in. in Pearl and Lake Sts., 2 ft. of 4-in. in Pilgrim and Brookline Sts., 577 ft. of 1-in. in Portland St., 212 ft. of 4-in. in Prescott St., 3 ft. of 6-in. in Prospect and Oak Sts., 3 ft. of 6-in. in Prospect St. and Webster Ave., 3 ft. of ¾-in. in River and Kinnaird Sts., 3 ft. of 4-in. in River and Rockwell Sts., 36 ft. of 4-in. in Rockingham St., 55 ft. of 4-in. in Rutland St., 241 ft. of 4-in. in Second St., 279 ft. of 6-in in Sparks St., 72 ft. of 4-in. in Spring St., 71 ft. of 4-in. in South St., Somerville, 3 ft. of 6-in. in South and Earle Sts., 3½ ft. of 1½-in. and 162 ft. of 6-in. in Vine St., 3 ft. of 1½-in., 3 ft. of 4-in. and 127 ft. of 6-in. in Western Ave., 3½ ft. of 1½-in. and 441 ft. of 4-in. in Woodlawn Ave.

In Chester and Dover Streets the pipe from the hydrant to the main pipe in North Avenue was enlarged from 4-in. to 6-in.

### New Supplies.

Three hundred and twenty-two new supplies have been laid, making a total of 9,413. Nineteen supplies have been renewed and the 12 supplies in Dinsmore Court had to be renewed their entire length on account of new main being laid at grade. The old fittings were laid so deep they were considered not worth digging for. Twenty supplies have been furnished with sidewalk shut-offs. Two have been enlarged.

### Leakage.

Three hundred and eighty-eight leaks have been stopped, namely: —one on 2-in. main, ten on 4-in. main, three on 6-in. main, one on 12-in. main and one on 30-in. main, thirty on supplies in streets and 342 on premises, reported by inspectors and repaired by owners or occupants.

The main pipes in Main Street, Murray Street and Putnam Avenue, and in the low territories of East Cambridge have been inspected. No general inspection of pipes and fixtures, other-

than that made by the inspectors while canvassing, has been made.

### Drinking Fountains.

The number of drinking fountains at this date is fifteen.

### Standpipes for Street Watering.

Five standpipes have been put in the following locations: — one in Mount Auburn and Willard Streets, one in Mount Auburn Street and Coolidge Avenue, one in Coolidge Avenue near stable, one in Walden Street and one in Fresh Pond Lane, making a total of 45.

### Gates.

All of the gates have been inspected and put in good condition.

### Boxes.

Twenty-two hydrant boxes, 41 gate boxes, 17 cock boxes and 48 iron boxes have been set in place of decayed ones removed.

### Hydrants.

Twenty new hydrants have been set during the year. Five were set for the City of Somerville, three of which were Pattee's, and their nozzles were changed to fit the Somerville hose-nipples. All of the others, excepting the Coffin hydrant set for Page's Fire Supply in Hampshire Street, were Chapman. Nineteen flush hydrants have been removed, making the total number now in use 613.

The flush hydrants removed were located as follows: — Brattle and Fayerweather Sts., Brattle St., and Fresh Pond Lane, Brattle St. and Lake View Ave., Brattle and Larch Sts., Bolton and Houghton Sts., Concord Ave. and Sparks St., Main St., opposite Kendall and Sons., Main and Columbia Sts., Main and Austin Sts., Main and Winsor Sts., North Ave. and Chester St., North Ave., and Day St., North Ave and Dover Sts. North Ave. and Spruce St., Prospect and Oak Sts., Prospect St. and Webster Ave., South and Gore Sts., South and Willow Sts., and Somerville Ave. and White St.

There are five flush hydrants on private premises, viz: two

on premises of New England Glass Co. on North St., two on premises of Boston and Lowell Railroad Co., on Prison Point St., and one on premises of C. L. Jones & Co., on Pearl St.

The number of street reservoirs now in use is eight.

### Brookline Street Pipe Bridge.

The west side of Brookline Street Pipe Bridge has been sheathed with 2-in. spruce plank from the bottom up three feet to protect the pine sheathing from the ice pressure.

The siphon has been pumped out.

### Pipe Yard.

The yard has been graded. The buildings, excepting the stable, which needs painting, are in good repair.

The following tables show the location of meters, fountains, and standpipes, the details of main and supply extension, and the account of stock on hand.

## List of Meters in Use November 30, 1887.

| Meters. | Locality. | Sizes. | Description. |
|---|---|---|---|
| Alghieri, Simon | Main St | ¾ | Worthington |
| Andrews, D. H | Sixth St | 1 | " |
| American Steam Laundry | Osborn St | 1 | Crown |
| " Net & Twine Co | Third St | 1½ | Worthington |
| " Rubber Co | Potter St | 4 | Crown |
| " Steam Safe Co | Main St | 1 | Worthington |
| " " " " | Main St | 2 | Union |
| " " " " | Main St | 1 | Crown |
| Barbour, W. O | Osborn St | 1 | Worthington |
| " " " | Osborn St | ¾ | Desper |
| Brown & Co | First St | ¾ | Worthington |
| Bowman & Co | Frank St | ¾ | " |
| Blake, I. W | Church St | 1 | " |
| " " " | Palmer St | ¾ | Ball and Fitts |
| Bay State Brick Co | Spruce St | ¾ | Worthington |
| Barnes, F. G | Cambridge St | 1½ | " |
| Balcom, A. W | Austin St | ¾ | Union |
| Bird, H. M | Broadway | ⅝ | " |
| Bullock, O. L | Broadway | ¾ | Worthington |
| Burton, A. & E | Harvard St | ¾ | " |
| Boston Woven Hose Co | Hampshire St | 4 | " |
| Boston Stamping Co | Third St | 1½ | Union |
| B. & L. R. R. (Repair Shop) | Bridge St | 2 | Worthington |
| " " " (Round-house) | Prison Point St | 2 | " |
| " " " (Round-house) | Prison Point St | 2 | " |
| " " " (Paint Shop) | Prison Point St | 1 | " |
| " " " (Car-house) | Prison Point St | 2 | " |
| " " " (Filling locom.) | Prison Point St | 6 | Union |
| Carr Bros | Lopez St | 1 | Worthington |
| Cambridgeport Diary Co | Magazine St | 1 | Worthington. |
| Cambridge Electric Light Co | Main St | 1½ | Union |
| Cambridge Gas Light Co | Third St | 1½ | Crown |
| Cambridge Gas Light Co | Ash St | ¾ | Worthington |
| Cambridge Hospital | Mount Auburn St | 1½ | Crown |
| Campbell Bros | Osborn St | ¾ | " |
| City of Cambridge, Shepard Sch. | North Ave | 2 | Worthington |
| " " " Ward 1 Bld | Brattle Sq | 1½ | " |
| " " " Ward 4 Bld | Central Sq | 1½ | " |
| " " " Upton Sch | Upton St | 2 | " |
| " " " Latin Sch | Lee St | 1 | " |
| " " " Cemetery | Coolidge Ave | 4 | " |
| " " " Almshouse | Tannery St | 2 | " |
| Cambridge R. R. Co., Stable | Green St | ¾ | " |
| " " " | Brookline St | 1 | " |
| " " Waiting Room. | Main St | ¾ | Union |
| " " Paint Shop | Dunster St | ¾ | Worthington |
| " " Repair Shop | Dunster St | ¾ | " |
| " " Car House | Dunster St | ¾ | " |
| " " Stable | Dunster St | ¾ | " |
| " " Stable | Dunster St | 1 | " |
| " " Office | Harvard Sq | ¾ | Crown |
| " " Washing Cars | Murray St | 1½ | " |
| " " Stable | Murray St | 1½ | Worthington |
| " " Car House | Cambridge and Baldwin | 1 | Desper |
| " " Stable | Baldwin St | 1 | Worthington |
| " " " | Cambridge St | 1 | " |
| " " " | Cambridge St | 1 | " |
| " " " | Cambridge St | 1 | " |
| " " " | Mount Auburn St | 2 | Crown |
| " " " | North Ave | 2 | Worthington |
| " " " | Main St | 2 | Worthington |
| " " " | River St | 1 | " |
| " Y. M. C. Association | Central Sq | 2 | " |
| Cushman Bros | Main St | ¾ | Union |
| Close George | Broadway | 1 | Worthington |
| Caswell & Coolidge | Franklin St | 1 | " |
| Coleman Bros | Broadway | 1 | " |
| Clark, B. P. & Co | Main St | 1½ | " |
| Cochran & Co | Potter St | 1 | Crown |
| Childs & Co | Main and Osborn Sts | ¾ | Union |
| Cass, Fred | Auburn St | 4 | Crown |
| Cofran, L. M | Concord Ave | 2 | Worthington |
| Coolidge, J. G., Greenhouse | Coolidge Ave | 1 | " |

## List of Meters.—*Continued.*

| Meters. | Locality. | Sizes. | Description. |
|---|---|---|---|
| Coolidge, J. G., Barn | Coolidge Ave | 2 | Worthington |
| Davis, Curtis & Co | Broadway | 2 | " |
| Davis, J. C. & Co | Broadway | 2 | Crown |
| Dugan & Rutherford | First St | 1 | " |
| Daniels, Badger & Co | Albany St | 2 | " |
| Davenport, A. H | Cambridge St | 2 | Worthington |
| Davenport, A. H | Otis St | ¾ | Crown |
| Dailey, C. W. | Cambridge St | 1 | Worthington |
| Derby, H | Main St | 1 | Crown |
| Dover Stamping Co | Pleasant St | 6 | Union |
| Downing, Theo | Eustis Ct | 1 | Worthington |
| Draper, Francis & Co | Otis St | ¾ | " |
| Dow, Davis & Co | Portland St | 2 | Crown |
| Day Cordage Co | Rogers st | 2 | " |
| Dee, T. W | Brattle St | 1 | " |
| East Cambridge Club Stable | First St | 1 | Worthington |
| Episcopal Seminary | Brattle St | 1½ | Worthington |
| Furfey, James | Brookline St | ¾ | " |
| Fischer, F | Tannery St | 2 | Union |
| Geldowsky, F | Thorndike St | 2 | " |
| Gilmore & Eustis | Portland St | 2 | Worthington |
| Goepper Bros | Ninth St | 1½ | " |
| " " | Spring St | 2 | " |
| Greely, Leander | Broadway | 1½ | " |
| Griffin & Dolan | Decatur St | ⅝ | Crown |
| Hazen, D. M | Elm St | 1 | Worthington |
| Holton, Fred H. & Co | Broadway | 2 | " |
| Harvard College, Holworthy Hall | College Grounds | ¾ | " |
| " " Boylston Hall | " " | 2 | Crown |
| " " Stoughton Hall | " " | ¾ | Worthington |
| " " Sever Hall | " " | ¾ | Crown |
| " " Thayer Hall | " " | 1½ | Worthington |
| " " In Yard | " " | 1½ | " |
| " " Memorial Hall | Cambridge St | 2 | " |
| " " Boat House | De Wolf St | 1 | Union |
| " " Botanic Garden | Garden St | 1 | Crown |
| " " Gymnasium | Cambridge St | 1½ | " |
| " " Holyoke House | Harvard St | 2 | Worthington |
| " " Museum | Divinity Ave | 1 | " |
| " " Scientific School | Kirkland St | ¾ | " |
| " " Law School | Holmes Pl | 1½ | " |
| " " Laboratory | " " | 1 | " |
| " " Jarvis Field | Everett St | ¾ | " |
| " " Holmes Field | North Ave | 2 | Union |
| Mason & Hamlin | Broadway | 1½ | Crown |
| Middlesex Bleachery | Sacramento St | 1 | Worthington |
| Middlesex Co. Court House | Otis St | ¾ | " |
| " " Reg. of Deeds | " " | ¾ | " |
| " " House of Cor | Thorndike St | 4 | Union |
| " " Court House | " " | ¾ | " |
| Millan, Alex | Brattle Sq | ¾ | Crown |
| Moore, Chas | Farwell Pl | 1 | Worthington |
| Moering, Mrs. A. L | Main St | 1 | " |
| Murdock, W. H | Griggs St | ⅝ | Ball and Fitts |
| Mount Auburn Greenhouse | Brattle St | 1 | Worthington |
| Mount Auburn Cemetery | Mt. Auburn St | ⅝ | Desper |
| Maverick Oil Works | Sixth St | 2 | Worthington |
| Miller & Shaw | Broadway | 1 | " |
| Morrill & Allen | Main St | ¾ | Crown |
| New England Glass Works | North St | 2 | Union |
| " " " " | " " | 2 | Worthington |
| Norton, E. H | Windsor St | 1 | " |
| O'Brien, John F | Coolidge Ave | ¾ | " |
| Page, George G. & Co | Hampshire St | 2 | " |
| Page, George G. & Co | " " | 4 | Union |
| Parry Bros | Raymond St | ¾ | Worthington |
| Patterson, R. J | Cedar St | 2 | Union |
| Pray & Mayall | Third St | 2 | Crown |
| Porcellian Club | Harvard St | 1 | " |
| Porter's Hotel | North Av | ¾ | Worthington |
| Phillips Geo. L | Main St | ¾ | " |
| Hawley Machine Co | First St | 1 | Worthington |
| Hilton J. M | Harvard St | 1½ | " |

## List of Meters.—*Continued.*

| Meters. | Locality. | Sizes. | Description. |
|---|---|---|---|
| Hazlett & Underhill | First St | 1½ | Worthington |
| Hewes, A. H. & Co | Richdale Ave | 1 | " |
| Holt & Bugbee | East St | ¾ | " |
| Hovey & Co | Cambridge St | 1 | " |
| Houghton, H. O. & Co | Blackstone St | 6 | Union |
| " " | " " | ⅝ | Crown |
| " " | " " | 2 | Worthington |
| Howe & Putney | Distillhouse St | 1 | " |
| Howland, W. B | Linden St | ⅝ | Crown |
| Hopkins, J. H. T | Prospect St | ¾ | Worthington |
| Ivers & Pond, 1 | Main & Albany Sts | 2 | " |
| Ivers & Pond. 2 | " " " " | 2 | Crown |
| Johnson & Doane | Green St | ¾ | Worthington |
| Jones, C. L. & Co | Pearl St | ¾ | " |
| Keeler & Co | Main St | 1 | Union |
| Kemp, L. & Sons | Davis St | 1 | Worthington |
| Kennedy, Frank & Co | Green St | 1½ | " |
| Kennedy, Frank & Co | Franklin St | 1½ | Union |
| Kendall & Sons, Engine Room | Main St | ¾ | Worthington |
| " " Boiler Shop | " " | ¾ | " |
| " " Foundry | " " | ¾ | " |
| Low, J. W | Reed St | 1½ | " |
| Little, Brown & Co | Blackstone St | ¾ | Union |
| Lamb & Ritchie | Albany St | 1 | Crown |
| Ross House | Broadway | ¾ | Worthington |
| Reardon, John & Sons | Waverly St | 4 | " |
| Revere Sugar Refinery | Water St | 3 | " |
| " " " | " " | 3 | Union |
| Reversible Collar Co | Mt. Auburn St | 1 | Worthington |
| Rawson & Morrison | Main St | ¾ | Ball and Fitts |
| Rougher, M | B. & L. R. R. Yard | 2 | Union |
| Rideout. M. E | State St | 1 | Worthington |
| Roberts, O. P | Brattle Sq | 1 | " |
| Ross, A. M | Main St | ¾ | " |
| Rogers, Geo. M | Washington St | 3 | " |
| Russell & Zerega | State St | ¾ | " |
| Sands, M. W | Walden St | ¾ | Crown |
| Sands, M. W | Dublin St | ¾ | Union |
| Sands, M. W | " " | ⅝ | Worthington |
| Shorey, Geo. L | Kinnaird St | 4 | Union |
| Smart, D. C | Main St | 2 | Worthington |
| Saurman. B. F | Gore St | ¾ | Union |
| Sortwell, D. R. & Co | Distillhouse St | 2 | Worthington |
| St. Mary's Church | Norfolk St | 2 | " |
| " " Gymnasium | Harvard St | ¾ | " |
| " " Aquinas Hall | " " | 1 | " |
| Spear, Gregory & Co | Rogers St | 1½ | " |
| Stavens, J. W. L | Bridge St | 1 | Crown |
| Squire, J. P. & Co | Gore St | 2 | Worthington |
| " " " Stable | " " | 1 | " |
| " " " | " " | 4 | Union |
| " " " | " " | 6 | Gem |
| Schaeffer Electric Light Co | Main St | ¾ | Union |
| Sweetzer Bros | Otis St | ¾ | Worthington |
| Tower, Sylvester | Broadway | 2 | Worthington |
| Thurston, Hall & Co | Elm St | 1 | " |
| Teele, Frank H | Lincoln Ct | ¾ | " |
| Thayer, Henry & Co | Broadway | 2 | " |
| Tracy, M. F | Boylston St | 1 | Desper |
| Temple, F. L | Kirkland St | 2 | Worthington |
| Union Pacific Tea Co | Main St | ¾ | Union |
| Uhrig, Joseph | " " | 1½ | Worthington |
| Union Glass Co | Webster Ave | ⅝ | Crown |
| " " " | " " | 1 | Worthington |
| Varnum, W. H | Putnam Av | ¾ | " |
| Whitney, W. H | Main St | ¾ | Crown |
| Wilson, John & Son | Brattle Sq | 1 | Union |
| Woodbridge, S. F | Frank St | 1 | Balance Valve |
| Waitt & Watts | Otis St | 1 | Worthington |
| Wight & Scorgie | Mt. Auburn | ¾ | Crown |
| Wilkins, Wm | Earl St | 1 | " |
| Woodbury, J. A | First St | 2 | Union |

Accompanying this report is that of the engineer at the Pumping Station, with a full account of the operations at the Engine-house.

Respectfully submitted,

HIRAM NEVONS,
*Superintendent.*

### List of Drinking Fountains, Nov. 30, 1887.

Bridge Street, junction of Cambridge Street.
Broadway, corner of Norfolk Street.
Brattle Square, east side at Brewer's Block.
Brattle Street, junction of Fresh Pond Lane.
Central Square, west side.
Central Square, east side.
Garden Street, at Washington elm.
Hampshire Street, junction of Broadway.
Harvard Square, at the flag-staff.
Inman Square, east side.
Main Street, junction of Broadway.
Main Street, junction of Mt. Auburn Street.
North Avenue, corner Walden Street.
North Avenue, north side, west of Cameron Street.
Putnam Avenue, corner Brookline Street.

### List of Stand-Pipes for Street Watering, Nov. 30, 1887.

Brattle Street, near University Press.
Brattle Street, corner Sparks Street.
Brattle Street, near Fayerweather Street.
Brattle Street, near Fresh Pond Lane.
Bridge Street, junction Cambridge Street.
Broadway, near Third Street.
Broadway, corner Sixth Street.
Broadway, corner Winsor Street.
Broadway, junction Hampshire Street.
Brookline, corner Putnam Avenue.
Cambridge Street, near Warren Street.
Cambridge Street, near Winsor Street,
Cambridge Street, at Inman Square.
Columbia Street, near Austin Street.
Concord Avenue, near Wyeth Street.
Coolidge Avenue, opposite entrance to Mt. Auburn Cemetery.
Dana Street, corner Chatham Street.
Fresh Pond Avenue, opposite Vassal Lane.
Gore Street, west of Third Street.
Green Street, near Western Avenue.

Garden Street, near Chauncy Street.
Harvard Street, corner Prescott Street.
Inman Street, near Broadway.
Kirkland Street, near Quincy Street.
Main Street, near Portland Street.
Main Street, near Hancock Street.
Magazine Street, opposite Warland Street.
Mt. Auburn Street, near Athens Street.
Mt. Auburn Street, near Willard Street.
Mt. Auburn Street, corner Coolidge Avenue.
North Avenue, near Common.
North Avenue, corner Sacramento Street.
North Avenue, near Roseland Street.
North Avenue, near Beech Street.
North Avenue, near Spruce Street.
North Avenue, corner Norris Street.
North Avenue, opposite Tannery Street.
Prison Point Street, opposite Round House.
River Street, near Putnam Avenue.
Sixth Street, near Thorndike Street.
Spruce Street, corner Cedar Street.
Third Street, near Rogers Street.
Thorndike Street, near Third Street.
Western Avenue, corner Howard Street.
Walden Street, corner Mt. Pleasant Street.

## Main Pipe Laid, Number of Gates and Fire Hydrants.

| Location. | Iron Pipe. | | Gates. | | Hydrants. | |
|---|---|---|---|---|---|---|
| | Length. | Size. | No. | Size. | No. | Size. |
| | Feet. | Inch. | | Inch. | | Inch. |
| Appleton Street | 715 | 4 | 2 | 4 | .... | .... |
| Auburn Street | 115 | 4 | 1 | 4 | .... | .... |
| Black's Nook | 650 | 30 | .... | .... | .... | ... |
| Bow and Arrow Streets | 6 | 6 | .... | .... | 1 | 6 |
| Bolton and Houghton Streets. | 12 | 6 | .... | .... | 1 | 6 |
| Brattle and Fayerweather Sts. | 5 | 6 | .... | .... | 1 | 6 |
| Brattle and Fresh Pond Lane. | 6 | 6 | .... | .... | 1 | 6 |
| Brattle and Lake View Ave... | 6 | 6 | .... | ... | 1 | 6 |
| Brattle and Larch Streets.... | 7 | 6 | .... | .... | 1 | 6 |
| Brendon Street | 673½ | 4 | 1 | 4 | ... | .... |
| Brewster Court | 318 | 4 | .... | .... | .... | .... |
| Brookline and Franklin Sts... | 1 | 4 | 1 | 4 | .... | .... |
| Cambridge Street | 3 | 10 | 1 | 10 | .... | .... |
| Clifton Street | 3½ | 1½ | .... | .... | .... | .... |
| Clifton Street | 223 | 6 | 1 | 6 | .... | .... |
| Cottage Court | 3 | 1½ | .... | .... | .... | .... |
| Cottage Court | 228 | 4 | 1 | 4 | .... | .... |
| Crescent Avenue | 60 | 6 | .... | .... | 1 | 6 |
| Cushing Street | 486 | 6 | .... | .... | .... | .... |
| Deacon Street | 243 | 2 | .... | .... | ... | .... |
| Deacon Street | 2 | 4 | .... | .... | .... | .... |
| Dinsmore Court | 3½ | 1½ | .... | .... | .... | . .. |
| Dinsmore Court (renewal).... | 188 | 4 | 1 | 4 | .... | .... |
| Dinsmore Court | 4 | 6 | .... | .... | .... | .... |
| Dudley Street | 3 | 1½ | .... | .... | .... | .... |
| Dudley Street | 132 | 4 | .... | .... | .... | .... |
| Green Street | 3½ | 1½ | .... | .... | .... | .... |
| Green Street | 225 | 4 | 1 | 4 | .... | .... |
| Green and Pearl Streets | 3 | 4 | 1 | 4 | .... | .... |
| Hammond Street | 3½ | 1½ | .... | .... | .... | .... |
| Hammond Street | 192 | 4 | .... | .... | .... | .... |
| Hampshire Street | .... | .... | .... | .... | 1 | 6 |
| Harvey Street | 3½ | 1½ | .... | .... | .... | .... |
| Harvey Street | 340 | 8 | .... | .... | .. | .... |
| Hayes Street | 3 | 1½ | .... | .... | .... | .... |
| Hayes Street | 122½ | 4 | 1 | 4 | .. . | .... |
| Hews Street | 70 | 4 | .... | .... | .... | .... |
| Highland Street | 2 | 8 | 1 | 8 | .... | .... |
| Irving Place | 3½ | 1½ | .... | .... | .... | .... |
| Irving Place | 211 | 4 | 1 | 4 | .... | .... |
| Lambert Avenue | 48 | 6 | .... | .... | .... | .... |
| Magazine and Auburn Sts.... | 4 | 4 | 1 | 4 | ... | .... |
| Magazine and Erie Streets... | 3 | 4 | 1 | 4 | .... | .... |
| Magazine and Fairmont Sts.. | 2 | 4 | 1 | 4 | .... | .... |
| Magazine and Prince Streets. | 2 | 4 | 1 | 4 | .... | .... |
| Magee Street | 3 | 1½ | .... | .... | .... | .... |
| Magee Street | 204 | 4 | .... | .... | .... | .... |
| Main Street | 17 | 6 | .... | .... | 2 | 6 |
| Main and Austin Streets..... | 5 | 6 | .... | .... | 1 | 6 |
| Main and Columbia Streets.. | 3 | 6 | .... | .... | .... | .... |
| Main and Windsor Streets... | 6 | 6 | .... | .... | 1 | 6 |
| Mason and Garden Streets... | .... | .... | 1 | 6 | ... | .... |
| Montgomery Street | 566 | 6 | .... | .... | .... | .... |
| Montgomery and Dudley Sts. | .... | .... | 1 | 6 | .... | ... |
| Montgomery and Harvey Sts. | .... | .... | 1 | 6 | .... | .... |
| Ninth Street | 3½ | 1½ | .... | ... | .... | .... |
| Ninth Street | 100 | 8 | 1 | 8 | .... | .... |
| North Ave. and Chester St... | 76 | 6 | 1 | 6 | 1 | 6 |
| North Ave. and Day St..... | 16 | 6 | .... | .... | 1 | 6 |
| North Ave. and Dover St..... | 79 | 6 | 1 | 6 | 1 | 6 |
| North Ave. and Spruce St.... | 12 | 6 | .... | .... | 1 | 6 |
| Oak, opp. Bolton Street..... | 20 | 6 | .... | .. . | 1 | 6 |
| Pearl and Allston Streets.... | 3 | 3 | 1 | 3 | .... | .... |
| Pearl and Erie Streets..... | 3 | 6 | 1 | 6 | .... | .... |
| Pearl and Hamilton Streets.. | 2 | 6 | 1 | 6 | .... | .... |
| Pearl and Lake Streets..... | 3 | 6 | 1 | 6 | .... | .... |
| Pilgrim and Brookline Sts... | 2 | 4 | 1 | 4 | .... | .... |
| Portland Street | 577 | 1 | .... | .... | ... | .... |

## Main Pipe Laid, Number of Gates and Fire Hydrants.

*(Continued.)*

| Location. | Iron Pipe. | | Gates. | | Hydrants. | |
|---|---|---|---|---|---|---|
| | Length. | Size. | No. | Size. | No. | Size. |
| | Feet. | Inch. | | Inch. | | Inch. |
| Prescott Street | 212 | 4 | 1 | 4 | .... | .... |
| Prospect and Oak Streets | 3 | 6 | 1 | 6 | 1 | 6 |
| Prospect and Webster Ave. | 3 | 6 | 1 | 6 | 1 | 6 |
| River and Kinnaird Streets | 3 | ¾ | 1 | 3 | .... | .... |
| River and Rockwell Streets | 3 | 4 | 1 | 4 | .... | .... |
| Rockingham Street | 36 | 4 | .... | .. | .... | .... |
| Rutland Street | 55 | 4 | .... | .... | .... | .... |
| Second Street | 241 | 4 | .... | .... | .... | .... |
| Sparks Street | 279 | 6 | 1 | 6 | .... | .... |
| Spring Street | 72 | 4 | .... | .... | .... | .... |
| South Street (Somerville) | 71 | 4 | .... | .... | .... | .... |
| South and Earle Streets | 3 | 6 | .... | .... | 1 | 6 |
| Vine Street | 3½ | 1½ | .... | .... | .... | .... |
| Vine Street | 162 | 6 | .... | .... | .... | .... |
| Western Avenue | 3 | 1½ | .... | .... | .... | .... |
| Western Avenue | 3 | 4 | 1 | 4 | .... | .... |
| Western Avenue | 127 | 6 | 1 | 6 | .... | .... |
| Woodlawn Avenue | 3½ | 1½ | .... | .... | .... | .... |
| Woodlawn Avenue | 441 | 4 | 1 | 4 | .... | .... |

## Recapitulation.

| | 30 Inch. | 10 Inch. | 8 Inch. | 6 Inch. | 4 Inch. | 3 Inch. | 2 Inch. | 1½ Inch. | 1 Inch. | ¾ Inch. | Total. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Length in feet of iron pipe | 650 | 3 | 102 | 2588 | 4547 | 3 | 243 | 46½ | 577 | 3 | 8762½ |
| No. of gates | .... | 1 | 2 | 13 | 20 | 2 | .... | .... | .... | .... | 38 |
| No. of hydrants | .... | .... | .... | 20 | .... | .... | .... | .... | .... | .... | 20 |

## New Supplies.

| | 6 Inch. | 4 Inch. | 2 Inch. | 1½ Inch. | 1¼ Inch. | 1 Inch. | ¾ Inch. | Total. |
|---|---|---|---|---|---|---|---|---|
| Length in feet of pipe laid | 14½ | 389 | 344½ | 162½ | 693 | 2284½ | 9495½ | 13,383½ |
| Number of supplies | 1 | 1 | 8 | 6 | 18 | 44 | 244 | 322 |
| Number of stop and waste cocks | .... | .... | 6 | 6 | 18 | 45 | 245 | 320 |
| Number of screw cocks | .... | .... | 2 | 6 | 18 | 43 | 247 | 316 |
| Number of sidewalk cocks | .... | .... | .... | .... | 1 | 44 | 244 | 289 |
| Number of service boxes | .... | .... | .... | .... | 1 | 44 | 243 | 288 |
| Number of boxes, frames and covers | .... | .... | ... | .... | .... | .... | .... | 36 |

## List of Check-Valves.

### Old High-Service.

| | Size in inches. |
|---|---|
| Lake View Avenue, 150 feet north from Huron Street | 10 |
| Lake View Avenue, 150 feet north from Brattle Street | 6 |
| Fayerweather and Reservoir Streets | 6 |
| Concord Avenue, 135 feet south from Buckingham Street | 6 |
| Buckingham Street, 220 feet west from Concord Avenue | 6 |
| Garden and Linnæan Streets | 6 |
| Raymond and Linnæan Streets | 6 |
| Avon Hill and Linnæan Streets | 6 |
| Arlington Street, 230 feet west of North Avenue | 6 |
| Mt. Vernon Street, 100 feet west from North Avenue | 6 |
| Mt. Pleasant Street, 150 feet south from Walden Street | 6 |

### New High-Service.

| | Size in inches. |
|---|---|
| Highland Street, on old 12-inch main | 12 |
| Dana Street and Broadway | 4 |
| Harvard Street, near Hancock | 6 |
| Centre Street, near Hancock | 4 |
| Dana Street, near Main | 4 |
| Harvard and Ellery Streets, two valves | 6 |
| Harvard and Trowbridge streets, two valves | 4 |
| Harvard and Ware Streets | 4 |
| Harvard and Prescott Streets | 4 |
| Quincy Street, near Broadway | 4 |
| Broadway, on line of 6-inch pipe crossing College Grounds | 6 |
| Waterhouse Street, near small common | 6 |
| Kirkland and Cambridge Streets | 10 |
| Berkeley Street, near Craigie | 4 |
| Appian Way, near Brattle Street | 4 |
| Linnæan and Lancaster Streets (old high-service extension) | 6 |
| Kirkland Street and Frisbie place | 4 |

## Statement of Stock on Hand Dec. 1, 1887.

### For Street Mains (Iron Pipes and Fittings).

| | 48 in. | 36 in. | 30 in | 24 in. | 20 in. | 16 in. | 12 in. | 10 in. | 8 in. | 6 in. | 4 in. | 3 in. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Straight pipes, 12 feet each | 2 | 2 | 15 | .. | 21 | 10 | 1 | 20 | 170 | 450 | 423 | .. |
| Bends | .. | .. | 1 | 3 | 2 | 2 | 2 | 9 | 9 | 9 | 6 | .. |
| Y branches | .. | .. | .. | 1 | 1-12 | .. | 1 | .. | .. | .. | .. | .. |
| Sleeves | .. | 2 | 1 | 4 | 7 | 2 | 2 | 4 | 9 | 11 | 4 | 8 |
| Clamp sleeves | .. | .. | .. | 8 | 8 | 3 | 4 | 7 | 4 | 8 | 6 | 3 |
| Drain-offsets | .. | .. | .. | .. | .. | .. | .. | .. | .. | 8 | .. | .. |
| Offsets | .. | .. | .. | .. | .. | .. | .. | 6 | 4 | 13 | 6 | .. |
| Gates | .. | .. | .. | .. | .. | .. | .. | 1 | 2 | 3 | 6 | 2 |
| Caps | .. | .. | .. | .. | .. | 2 | 8 | 2 | 4 | 11 | 8 | .. |
| Blow-off branches. | .. | .. | .. | .. | 2-6 | .. | .. | .. | .. | .. | .. | .. |
| Cl'mps f'r c'mt pipe | .. | .. | .. | .. | 2 | .. | .. | .. | .. | .. | .. | .. |
| Check-valves | .. | .. | .. | .. | 2 | .. | .. | 1 | .. | .. | .. | .. |
| T's | .. | .. | 1-6 | 1-24 | 2-20 | 2-6 | 3-8 | 3-8 | 14-8 | 13-6 | 12 | 2 |
| " | .. | .. | .. | 1-20 | 1-12 | .. | .. | 10-6 | 1-6 | 9-4 | .. | .. |
| " | .. | .. | .. | 1-16 | 2-6 | .. | .. | .. | 1-4 | .. | .. | .. |
| " | .. | .. | .. | 1-8 | .. | .. | .. | .. | .. | .. | .. | .. |
| " | .. | .. | .. | 3-6 | .. | .. | .. | .. | .. | .. | .. | .. |
| Crosses | .. | .. | .. | .. | 1-20 | 1-12 | 5-10 | 2-8 | 2-4 | 6-6 | 16 | 2 |
| " | .. | .. | .. | .. | 2-10 | 3-6 | 6-4 | 2-10 | .. | 8-4 | .. | .. |
| " | .. | .. | .. | .. | .. | .. | 7-6 | 8-6 | .. | .. | .. | .. |
| Reducers | .. | .. | .. | 1-10 | 2-12 | 1-6 | 2-6 | 1-8 | 8-6 | 26-4 | 1-3 | .. |
| " | .. | .. | .. | .. | 1-8 | .. | .. | .. | .. | .. | .. | .. |

### For Supplies (Galvanized Pipe and Brass Fittings).

| | 2-in. | 1½-in. | 1¼-in. | 1-in. | ¾-in. |
|---|---|---|---|---|---|
| Feet in length of galvanized pipe | 710 | 324 | 394 | 400 | 800 |
| Elbows | 37 | 37 | 35 | 45 | 65 |
| Street elbows | .. | .. | .. | 36 | 26 |
| Couplings | 27 | 50 | 40 | 90 | 80 |
| Unions | 43 | 35 | 35 | 51 | 56 |
| Brass unions for lead connections | .. | .. | .. | .. | 34 |
| Faucets | .. | .. | .. | 12 | 6 |
| Stop and waste cocks | 4 | 19 | 11 | 18 | 73 |
| Screw-cocks | 11 | 16 | 7 | 8 | 72 |
| Sidewalk-cocks | .. | .. | .. | 15 | 333 |
| Screw-cock for cement pipes | .. | 4 | .. | 25 | .. |
| Blow-off cocks | .. | 9 | .. | .. | .. |
| Air chambers | .. | .. | .. | 43 | 14 |
| Socket end of rods, 38 | .. | .. | .. | .. | .. |
| Nipples | 80 | 112 | 100 | 273 | 365 |
| Plugs | 15 | 20 | 45 | 57 | 15 |
| Bushings | 27 | 58 | 110 | 25 | 1 |
| Fountain-cocks | .. | .. | .. | .. | 10 |
| Sill-cocks | .. | .. | .. | .. | 6 |
| Hose-nipples | .. | .. | .. | .. | 6 |
| Sill-valves, nickle-plated | .. | .. | .. | .. | 6 |
| T's | 24 | .. | 68 | 90 | 167 |
| Lot of cast-iron T's and crosses | .. | .. | .. | .. | .. |
| Caps | 52 | 12 | 19 | 34 | 28 |
| Reducing couplings | 5 | 30 | 15 | 13 | 13 |
| Stand pipes, 87 | .. | .. | .. | .. | .. |
| Clips, 36 | .. | .. | .. | .. | .. |
| Lead connections | .. | .. | 1 | 12 | 26 |
| Hydrant-cocks | .. | .. | .. | 1 | 11 |
| Check-valves | 1 | 1 | 1 | 4 | 4 |
| Cement cocks | .. | .. | .. | 19 | .. |
| Chapman valves | 3 | 1 | .. | .. | 1 |

## Stock in Shop and Yard.

3 hydrant-valves.
9 bolts for flush hydrants.
21 stop and wastes for flush-hydrants.
4 lead kettles.
3 furnaces.
3 ladles.
3 bench vises.
4 drinking-fountains.
8 bands for capping main-pipe.
1 meter-box.
1 iron box.
12 hydrant boxes.
9 wooden gate-boxes.
2 cock-boxes.
38 large frames and covers for gates.
25 large frames and covers for hydrants.
22 small frames and covers for gates.
171 risers for wooden boxes.
245 seals.
1 breast drill.
1 rachet for tapping main pipe.
3 machines for tapping cement pipe.
1 washer cutter.
1 platform scales.
2 grindstones.
1 diaphragm pump.
1 hand pump.
8 thawing-out pumps.
200 feet thawing-out pipe.
½ barrel clay.
2 hatchets.
3 hoes.
1 hay cutter.
3 small derricks.
1 breast derrick.
13 pipe wrenches.
2 nut wrenches.
6 monkey wrenches.
30 nuts.
1 axe.
4 sledge hammers.
lot of old junk.
4 gallons oil.
1 pair long leg boots.
1 cord wood.
25 feet ¾-in. hose.
½ cask cement.
100 feet 2-in. pipe.
8 screw-drivers.
3 saws.
1 floating hook.
1 large mall.
1 barrel R. R. spikes.
plane, square, compasses, etc., for carpentering.
Lot of lumber.
Lot of spindles for 4-inch and 6-inch gates.
5 horses.
6 wagons.
6 harnesses.
2 sleighs.
2 double-runner sleds.
8 blankets.
2 buffalo robes.
2 lap robes.
3 oil-coverings for horses.
1 lathe, with usual chucks and tools.
1 water motor.
1 threading machine with dies complete.
1 drilling machine with drills complete.
3 tapping machines for supplies, with taps and drills.
4 hooks for tapping main pipe.
2 2-inch taps and drills.
8 pipe cutters.
7 pipe tongs.
4 sets main pipe tools.
10 gate wrenches.
4 blow-off wrenches.
1 2-inch cock wrench.
1 30 over-flow bell.
1 stove with fixtures.
1 tank for measuring water.
1 work bench with drawers.
1 work bench.
1 clock.
4 jugs.
67 block stones.
4 wooden horses.
9 oil cans.

8 die-plates, with dies.
1 tool chest.
1 hand cart.
9 chains.
82 shovels.
3 snow shovels.
28 picks.
21 trench rammers.
2 paving rammers.
11 pails.
4 iron bars.
2 wheelbarrows.
2 tamping bars.
1070 pounds lead.
50 pounds packing.
4 hydrant bodies.
1 set hydrant tools.
3 rakes.
Lot of old flush-hydrants.
8 post-hydrants.
19 post-hydrant rods.
5 hammers.
1 plough.
1 drag.
36 wooden plugs.
Lot of block and wedges.
Lot of counters and rachet movements for meters.
2 ¾-inch Worthington meters.
10 1-inch Worthington meters.
1 3-inch Worthington meter.
1 4-inch Worthington meter.
1 ¾-inch Union Rotary meter.
1 1-inch Union Rotary meter.
1 1½-inch Union Rotary meter.
1 ¾-inch Crown meter.

## Stock at Fresh Pond.

2 sledge hammers.
28 shovels.
25 picks.
2 axes.
2 paving hammers.
2 saws.
1 hatchet.
4 rakes.
2 levels.
3 pails.
2 chains.
4 iron bars.
4 grub hoes.
3 plows.
1 gravel scraper.
16 old wheelbarrows.
2 chests.
1 lantern.
3 gate wrenches.
900 railroad ties.
6,000 feet old plank.
Lot of sheet piling.
1 gravel screen.
1 drag.
6 lengths 30-inch pipe.
1 length 4-inch pipe.
1 row boat and oars.

# REPORT

OF THE

# ENGINEER OF THE PUMPING STATION.

---

PUMPING STATION,
CAMBRIDGE WATER WORKS,
December 1, 1887.

*Hiram Nevons, Esq., Superintendent:* —

SIR: I would report the machinery at the pumping station in good condition. Engine No. 2 has had new steam valve stems put in. The old boilers have been altered to conform to the new ones put in last year. The main steam pipe has had new joints made and has been covered with Fossil meal composition, the lagging repaired and oiled. A Flinn mercurial damper regulator has been attached to the boilers and has given perfect satisfaction.

The auxiliary pumps have been in operation nearly the whole year, only being stopped from May 2 to 17. Following will be found a statement of the expenses at the pumping stations, with the usual tables.

EDWIN C. BROOKS,
*Engineer.*

---

STATEMENT.

| | |
|---|---|
| $350\frac{1700}{2240}$ tons Cumberland coal at $4.18 | $1,466 17 |
| $505\frac{2100}{2240}$ tons Cumberland coal at $4.75 | 2,403 20 |
| $114\frac{1040}{2240}$ tons Cumberland coal at $4.65 | 553 02 |
| Amount brought forward | $4,422 39 |

| | |
|---|---|
| Amount brought forward | $4,422 39 |
| Oil, waste, packing, etc., | 209 62 |
| Repairs on engines and boilers | 147 84 |
| Repairs on buildings and care of grounds | 501 08 |
| Tools, instruments and furniture | 236 20 |
| Gas | 142 40 |
| Salaries | 4,057 00 |
| | $9,716 53 |

Statement of expenses at auxiliary pumping station :

| | |
|---|---|
| $460\frac{1}{2}\frac{5}{24}\frac{0}{0}$ tons Cumberland coal at $4.49 | $2,068 43 |
| 5 tons furnace coal at $6.00 | 30 00 |
| Oil, waste, packing, etc., | 100 00 |
| Repairs on building and fire protection | 100 21 |
| Salaries | 2,190 00 |
| Repairs on engines and boilers | 205 62 |
| | $4,694 26 |

# Engine Record, Pond Levels and Rainfall.

| Date. | Low-Service Engines. | | | | | | High-Service Engine. | | | | | | Total water pumped. | Daily average water pumped. | Total coal consumed. | Daily average coal consumed. | Av'age height of pond. | Rainfall. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total pumping time. | | Daily average pumping Time. | | Total water pumped. | Daily average water pumped. | Total pumping time. | | Daily average pumping Time. | | Total water pumped. | Daily average water pumped. | | | | | | |
| | Hrs. | Min. | Hrs. | Min | Gallons. | Gallons. | Hrs. | Min. | Hrs. | Min. | Gallons. | Gallons. | Gallons. | Gallons. | Lbs. | Lbs. | Feet. | Inches. |
| December, 1886.. | 442 | 20 | 14 | 16 | 104,088,000 | 3,357,677 | 442 | 20 | 14 | 16 | 8,718,970 | 281,257 | 112,806,970 | 3,638,935 | 171,600 | 5,535 | 6.48 | 5.23 |
| January, 1887.... | 507 | 45 | 16 | 23 | 120,652,500 | 3,892,016 | 507 | 45 | 16 | 23 | 10,275,917 | 331,481 | 130,928,417 | 4,223,497 | 188,800 | 6,090 | 6.05 | 5.28 |
| February, 1887.. | 426 | 55 | 15 | 15 | 101,689,200 | 3,631,757 | 426 | 55 | 15 | 15 | 8,284,877 | 295,888 | 109,974,077 | 3,891,645 | 158,300 | 5,654 | 6.90 | 4.66 |
| March, 1887..... | 442 | 45 | 14 | 17 | 105,233,700 | 3,394,636 | 442 | 45 | 14 | 17 | 8,956,589 | 288,922 | 114,190,289 | 3,683,558 | 184,000 | 5,936 | 7.33 | 4.46 |
| April, 1887..... | 403 | 35 | 13 | 27 | 92,584,500 | 3,086,150 | 403 | 35 | 13 | 27 | 7,776,806 | 259,227 | 100,361,306 | 3,345,376 | 166,900 | 5,563 | 7.81 | 3.94 |
| May, 1887..... | 476 | 50 | 15 | 23 | 114,590,700 | 3,696,474 | 476 | 50 | 15 | 23 | 10,106,419 | 326,014 | 124,697,119 | 4,022,488 | 200,400 | 6,465 | 7.55 | 1.79 |
| June, 1887..... | 485 | 30 | 16 | 11 | 117,181,200 | 3,906,040 | 485 | 30 | 16 | 11 | 10,908,154 | 363,605 | 128,089,354 | 4,269,645 | 198,400 | 6,613 | 6.65 | 1.86 |
| July, 1887..... | 489 | 10 | 15 | 47 | 121,160,700 | 3,908,410 | 489 | 10 | 15 | 47 | 11,591,155 | 373,908 | 132,751,855 | 4,282,318 | 197,600 | 6,374 | 5.24 | 4.19 |
| August, 1887..... | 442 | 50 | 14 | 17 | 108,733,200 | 3,507,523 | 442 | 50 | 14 | 17 | 11,709,658 | 377,731 | 120,442,858 | 3,885,254 | 180,700 | 5,829 | 4.17 | 4.10 |
| September, 1887. | 419 | 25 | 13 | 59 | 101,976,300 | 3,399,210 | 419 | 25 | 13 | 59 | 10,958,842 | 365,295 | 112,935,142 | 3,764,505 | 177,600 | 5,920 | 4.12 | 1.36 |
| October, 1887.... | 444 | 35 | 14 | 25 | 104,751,000 | 3,379,065 | 444 | 35 | 14 | 25 | 11,545,190 | 372,425 | 116,296,190 | 3,751,490 | 188,700 | 6,087 | 4.19 | 3.22 |
| November, 1887.. | 406 | 20 | 13 | 33 | 95,439,600 | 3,181,320 | 406 | 20 | 13 | 33 | 10,497,754 | 349,925 | 105,937,354 | 3,531,245 | 172,400 | 5,745 | 4.80 | 3.90 |
| Total..... | 5,388 | 00 | | | 1,288,080,600 | | 5,388 | | | | 121,330,331 | | 1,409,410,931 | | 2,185,400 | | | 43.99 |
| Daily Average.. | 14 | 46 | | | 3,528,988 | | 14 | 46 | | | 332,412 | | 3,861,400 | | 5,987 | | 5.94 | |

### Stock on Hand December 1, 1887.

1,180 tons Cumberland coal, 41 gallons cylinder oil, 16 gallons engine oil, 4 gallons kerosene oil, 15 pounds tallow, 60 pounds cotton waste, 10 pounds rubber packing, 5 pounds empire packing, 16 pounds Winans packing, 6½ pounds square flax packing, 16 pounds flax packing, 14 pounds soap, 8 manhole gaskets, 8 9-in. rubber valves, 2 valve seats, 2 steam gauges, 80 fire-brick, 2 brooms, 5 files, 1 pound emery, 2 barrels brimstone, 300 pounds bolts and nuts, 1 pair plungers and rings for No. 2 engine, 1 lot iron pipe, 1 lot pipe fittings, 10 feet 24-inch flange pipe, 8 feet 9-inch flange pipe, 8 feet 6-inch flange pipe.

### Tools, Furniture and Instruments.

1 18-inch x 10 ft. engine lathe, 2 lathe chucks, 6 lathe dogs, 18 lathe tools, 1 grindstone, 1 3-inch x 9-inch engine with shafting, belting, etc., 2 vises, 2 vise benches, 3 die plates and dies, 1 set pipe taps, 1 set hand taps, 2 pipe cutters, 14 pairs pipe tongs, 3 hand hammers, 1 copper hammer, 1 soft hammer, 20 cold chisels, 6 files, 1 hand bellows, 6 screw wrenches, 5 Stillson wrenches, 2 hack saws, 22 fork wrenches, 27 socket wrenches, 5 gate wrenches, 1 hydrant wrench, 2 clamp screws, 2 sledges, 2 ratchets, 24 drills, 1 breast drill, 2 jack-screws, 6 steel bars, 2 soldering irons, 4 cylinder-head cranes, 12 eye bolts, 75 starting bolts, 1 chain fall, 3 tackles, 2 ladles, 6 wooden horses, 1 hand pump and 20 feet suction pipe, 4 rattan brooms, 1 oil cabinet, 1 set measures, 1 lot oil cans, 1 oil pump, 1 carpenter's bench, 4 planes, 3 hand saws, 8 chisels, 7 gouges, 2 screwdrivers, 2 bit-stocks, 13 bits, 3 augers, 1 draw-knife, 1 spokeshave, 1 axe, 1 hand axe, 2 hatchets, 2 squares, 1 set fire tools, 1 coal car, 1 pair platform scales, 2 wheelbarrows, 10 scoop shovels, 1 tube brush, 1 forge, 1 anvil, 5 pairs tongs, 2 hand chisels, 1 lawn mower, 2 steel rakes, 2 wooden rakes, 3 scythes, 4 forks, 1 weeder, 2 spades, 1 pick, 1 cast-iron roller, 6 ladders, 3 step-ladders, 200 ft. 2-inch hose and pipe, 50 ft. ¾-inch hose and pipe, 4 pairs rubber boots, 1 water cooler, 6 fire pails, 8 water pails, 1 watering pot, 1 window brush, 1 floor brush, 2 dust brushes, 1 feather duster, 1 dust-pan, 1 lot cocoa matting, 5 mats, 6 spittoons, 1 lot gas fixtures, 3

3 lanterns, 3 hand lamps, 1 desk, 2 tables, 14 chairs, 2 clocks, 1 barometer, 1 thermometer, 1 hygrophant, 2 rain gauges, 1 snow gauge.

**Tools, Furniture, etc, at Auxiliary, Pumping Station.**

1 12x20 portable engine and boiler, 1 12x20 stationary engine, 1 40 H. P locomotive boiler, 1 No. $2\frac{1}{2}$ Blake pump, 1 12-inch centrifugal pump, 2 12-inch Follansbee propeller pumps, 1 lot shafting,, pulleys, and belting, 1 hand force pump, 100 ft. 1-inch fire hose and pipe, 80 ft. 1-inch rubber hose, 1 set fire tools, 4 oil cans, 1 belt awl, 1 belt punch, 1 belt clamp, 1 lot belt lacings, 4 bracket lamps, 2 lanterns, 1 large lantern, 1 stove and pipe, 1 cot bed and bedding, 1 ice chisel, 1 ice saw.

# REPORT

OF THE

# CHIEF ENGINEER OF THE FIRE DEPARTMENT.

---

CHIEF ENGINEER'S OFFICE, CITY HALL,
CAMBRIDGE, MASS., Dec. 19, 1887.

*To His Honor the Mayor and the City Council:—*

GENTLEMEN: In compliance with the provisions of the City Ordinance, I have the honor herewith to submit to you my ninth annual report of the Fire Department for the year ending Nov. 30, 1887.

## Manual Force.

The manual force of the department consists of twenty-four permanent men and seventy-four call men, making a total force of ninety-eight members, including the fire alarm operators.

But few changes have been made in this department since my last report, the *personnel* of the force remaining nearly the same.

## Apparatus.

The apparatus is in good serviceable condition, and remains the same as last reported, with the exception of seven Babcock fire extinguishers purchased early in the year, one being placed in service on each hose carriage and ladder-truck. During the time they have been in service, several fires have been extinguished by their prompt work with but trifling loss. The rapidity with which they can be brought into service saves valuable time and prevents the use of water, which often destroys more than the fire.

In the latter part of the year a leak was discovered in the boiler of Engine No. 1, and on making an examination to ascertain the cause it was found to be badly eaten, and that a new

one would have to be provided. Consequently a new boiler was ordered, and the engine, after being repaired at a small cost, was returned in as good condition as a new one.

I desire to renew my recommendation of last year that another steam fire engine be purchased and located on the south side of Main Street.

It is my opinion that it is much needed not only as a protection to that part of the city, but for the whole city.

### Hose.

During the year 300 feet of hose has been condemned and 300 feet purchased. The total amount of serviceable hose now in use by the several steamer companies is 10,500 feet. It will be necessary the coming year to purchase a quantity of hose to replace that which becomes weak from long service and is considered unreliable for further use.

### Horses.

There are twenty-five horses in the service of this department, nearly all of which are in first-class condition and well suited for the work required of them. One has been lost by death, two have been disposed of by exchange, and two purchased.

It need not seem strange that from the above number it will become necessary each year to replace some of them that become unfitted for the service through age and from unforeseen circumstances.

### Fire Alarm Telegraph.

The fire alarm telegraph has worked satisfactorily and in no case has it failed to give the alarm correctly during the year. The greatest care, however, has to be exercised on the part of those having it in charge in protecting the wires from interference by the many telephone and other wires which are constantly coming in contact with those of the fire alarm.

There has been no addition to this branch of the service this year, other than the usual replacing of poles and line wire which have become decayed from long service.

I would recommend that additional street signal boxes be purchased and placed in such localities as most need them.

## Houses.

The several houses occupied by this department are in good condition and will only need the customary repairs the coming year.

In July last work was commenced for the erection of a new brick, ladder and engine house on Portland street. The building although erected, is not quite ready for occupancy, but will be in a few weeks. The house when finished will be occupied by Ladder Truck No. Two, the relief engine and the Chief engineer's wagon. It is being furnished with all modern improvements and when finished will give to the department one of the best fire stations in the city.

## Fires and Alarms.

The whole number of fires and alarms from all causes was: bell alarms, eighty-seven; still alarms twenty-one; making a total of one hundred and eight, or twenty-nine less than the previous year. The losses and insurance as near as could be ascertained are as follows: —

| | Loss. | Ins. | Ins. paid. |
|---|---|---|---|
| On buildings | $20,924 00 | $108,103 00 | $17,309 00 |
| On contents | 112,499 00 | 129,649 00 | 92,543 00 |
| Total | $133,423 00 | $237,752 00 | 109,852 00 |

## Appropriation, Receipts and Expenditures.

The total appropriation for the ordinary expenses of the department for the year, was $51,534.46. The expenditures were as follows:

| | |
|---|---|
| Pay-roll | $38,999 90 |
| Apparatus and repairs | 1,184 91 |
| Bedding and furniture | 175 38 |
| Buildings, repairs of | 1,153 50 |
| Expressing | 19 40 |
| Fuel | 844 36 |
| Fire alarm, supplies | 798 52 |
| Gas | 825 50 |
| Harnesses and repairs | 122 08 |
| Hay, grain and straw | 2,379 47 |
| Hose and repairs | 352 44 |
| Amount carried forward | $46,855 46 |

| | | |
|---|---|---|
| Amount brought forward | | $46,855 46 |
| Horses | | 1,300 00 |
| Horse hire and men (extra) | | 1,001 00 |
| Horse shoeing | | 534 10 |
| Hydrants, care of | | 219 05 |
| Incidentals | | 87 00 |
| Rent of shed | | 90 00 |
| Rent of land | | 80 00 |
| Supplies | | 386 33 |
| Veterinary services and medicines | | 200 74 |
| Washing | | 330 89 |
| | | $51,084 57 |
| Appropriation | $51,200 00 | |
| Receipts | 334 46 | |
| | | $51,534 46 |
| Amount expended | | $51,084 57 |
| Balance unexpended | | 449 89 |

An appropriation of $17,600.00 was made for the construction of a ladder and engine-house on Portland street, and as the building is not yet completed I would refer you to the report of the superintendent of buildings for particulars.

### Appointments, Transfers and Discharges.

Engine Company No. 1.—John S. McLean, hoseman was discharged at his own request Sept. 30, and Albert L. Landerkin was appointed to fill the vacancy Oct. 19.

Engine Company No. 2.—Smith A. Mowry, fireman, was discharged at his own request June 27.

Engine Company No. 3.—William H. Murray, hoseman, was discharged at his own request April 30, and John F. Brassel was appointed to fill the vacancy May 11.

Hook and Ladder Company No. 1.—John T. Mahaffy, assistant foreman, was discharged for neglect of duty May 20, and James P. Ewell, ladderman, was promoted to fill the vacancy July 1st, and Thomas H. Kneeland was appointed to fill the vacancy of ladderman same date.

William Parks, ladderman, was transferred to fireman of Engine No. 2, July 1, and William Stolba was appointed to fill the vacancy July 13.

## Accidents.

Although the department has had many calls the past year I am pleased to report that no accident of a serious nature has befallen any of its members.

The department was called to Woodbury mill, First street, on the morning of Dec. 11, 1886, to extinguish a fire in the boiler and engine-rooms caused by the explosion of shaving dust.

The building was badly damaged by the explosion and several workman injured, among whom was Francisco da Silva, whose body was taken from the ruins burned to a crisp; L. Harry Newhall, José Maciel, and Felix de Medeiros died of their injuries; John E. Paine, Charles Bell, Albert Murray, Joseph Davis, Manuel de Sausa and Seraphin de Sausa were severely injured and burned.

## Acknowledgments.

In conclusion, I desire to express my thanks to the Honorable Mayor, the city council and the Committee on Fire Department, for the interest manifested in the success of and support given to the requirements of the department during the year.

To the board of Engineers and the officers and members of the several companies, I return my thanks for the prompt and efficient manner in which they have performed their duty the past year.

Respectfully submitted,

THOMAS J. CASEY,
*Chief Engineer.*

# APPENDIX.

## Joint Standing Committee on Fire Department.

Aldermen,

JOHN W. COVENEY, P. ALLEN LINDSEY.

Councilmen,

WILLIAM H. EVELETH, JAMES H. MCPECK, FRANKLIN W. HAYNES.

## Board of Engineers.

Chief Engineer and Superintendent of the Fire Alarm Telegraph.

THOMAS J. CASEY.

Salary, $1,500. Residence, 173 Cambridge Street.

First-Assistant Engineer and Secretary of the Board (Call):

NATHANIEL W. BUNKER.

Salary, $400. Residence, 6 Beach Street.

Second-Assistant Engineer (Call):

CHARLES W. BRACKETT.

Salary, $375. Residence, 133 Mt. Auburn Street.

Third-Assistant Engineer (Call):

WILLIAM B. CADE.

Salary, $375. Residence, 27 Park Street.

## Engine Company No. 1.

*House, Brattle Square.*

| No. of Badge. | Name. | Rank. | Age. | Residence. | Salary per yr. |
|---|---|---|---|---|---|
| | *Permanent Force:* | | | | |
| 1 | Edwin E. Priest | Engineer | 50 | 46 Winthrop st | $1,080 |
| 2 | Hiram W. Hooker | Driver of engine | 49 | Engine-house | 900 |
| 3 | Charles R. Hooker | Driver of hose | 43 | 15 Eliot st | 900 |
| | *Call Force:* | | | | |
| 23 | William H. Emery | Foreman | 54 | 141 Mt. Auburn st | 220 |
| 24 | John H. Brown | Asst. Foreman | 36 | 35 Pleasant st | 210 |
| 25 | James Jefferson | Fireman of engine | 34 | 9 Eliot st | 200 |
| 26 | John L. Jones, Jr. | Hoseman | 36 | 650 Main st | 200 |
| 28 | Daniel E. Shea | " | 31 | Murray st | 200 |
| 29 | William A. Carlin | " | 36 | Murray st | 200 |
| 30 | James McLean | " | 27 | 61 Boylston st | 200 |
| 31 | Robert L. Williams | " | 38 | 28 Mt. Auburn st | 200 |
| 27 | Albert L. Landerkin | " | 33 | 16 Surrey st | 200 |

## Engine Company No. 2.

*House, Main Street near Winsor.*

| No. of Badge. | Name. | Rank. | Age. | Residence. | Salary per yr. |
|---|---|---|---|---|---|
| | *Permanent Force:* | | | | |
| 4 | Thomas Wiseman | Engineer | 43 | 392 Main st | $1,080 |
| 5 | John H. Walker | Driver of engine | 58 | 7 Winsor st | 900 |
| 6 | Albert F. Sawyer | Driver of hose | 44 | 11 Front st | 900 |
| | *Call Force:* | | | | |
| 32 | James Cunningham | Foreman | 45 | 25 State st | 220 |
| 33 | Arthur C. Day | Asst. Foreman | 50 | 47 Austin st | 210 |
| 34 | William Parks | Fireman of engine | 43 | 8 Moore st | 200 |
| 35 | Benjamin D. Foss | Hoseman | 51 | 17 Cherry st | 200 |
| 36 | John McCarthy | " | 37 | 16½ Clark st | 200 |
| 37 | John Haley | " | 33 | 47 School st | 200 |
| 38 | Charles H. Chapman | " | 34 | 401½ Main st | 200 |
| 40 | John G. Hicks | " | .. | 25 Park st | 200 |
| 39 | Warren H. Dow | " | 37 | 414 Main st | 200 |

## Engine Company No. 3.

*House, Fourth Street near Cambridge.*

| No. of Badge. | Name. | Rank. | Age. | Residence. | Salary per yr. |
|---|---|---|---|---|---|
| | *Permanent Force:* | | | | |
| 7 | Hiram Blood | Engineer | 55 | 40 Fifth st | $1,080 |
| 8 | Peter F. McSorley | Driver of engine | 28 | 33 Fourth st | 900 |
| 9 | Lorenzo H. Dale | Driver of hose | 45 | 94 Gore st | 900 |
| | *Call Force:* | | | | |
| 43 | William F. Newman | Foreman | 41 | 42 Winter st | 220 |
| 44 | Edwin Winward | Asst. Foreman | 43 | 96 Thorndike st | 210 |
| 45 | Elliot E. Alley | Fireman of engine | 51 | 73 Thorndike st | 200 |
| 42 | Walter Baker | Hoseman | 33 | 91 Gore st | 200 |
| 46 | Timothy J. Mahoney | " | 39 | 100 Vine st | 200 |
| 47 | Louis J. Stanger | " | 33 | 57 Vine st | 200 |
| 49 | John S. Dooris | " | 42 | Rear 26 Winter st | 200 |
| 41 | William H. Cairns | " | 24 | 89 Third st | 200 |
| 48 | John F. Brassel | " | 30 | 12 Warren st | 200 |

## Engine Company No. 4.

*House, North Avenue near Russell Street.*

| No. of Badge. | Name. | Rank. | Age. | Residence. | Salary yer yr. |
|---|---|---|---|---|---|
| | *Permanent Force:* | | | | |
| 10 | John E. Ricker | Engineer | 43 | 7 Orchard st | $1,080 |
| 11 | George E. Muzzey | Driver of engine | 45 | 221 North ave | 900 |
| 12 | Sylvanus G. Griffin | Driver of hose | 40 | Engine-house | 900 |
| | *Call Force:* | | | | |
| 53 | Edgar H. Locke | Foreman | 40 | 164 Elm st | 220 |
| 52 | William J. Hanna | Asst. Foreman | 41 | 9 Rice st | 210 |
| 57 | Benjamin Young | Fireman of engine | 43 | Engine-house | 200 |
| 58 | Arthur C. Griffin | Hoseman | 37 | 26 Rice st | 200 |
| 56 | Josiah P. Parsons | " | 39 | Engine-house | 200 |
| 51 | Edward A. Hurd | " | 37 | Palmer st | 200 |
| 50 | George F. Tibbets | " | 47 | 26 Cogswell ave | 200 |
| 54 | Nicholas J. Penney | " | 29 | 7 Frank st | 200 |
| 55 | Jeremiah O'Connor | " | 29 | Montgomery st | 200 |

## Engine Company No. 5.

*House, Inman Square.*

| No. of Badge. | Name. | Rank. | Age. | Residence. | Salary per yr. |
|---|---|---|---|---|---|
| | *Permanent Force:* | | | | |
| 13 | Charles E. Connor | Engineer | 37 | 511 Cambridge st | $1,080 |
| 14 | Joseph P. Cartwright | Driver of engine | 51 | 529 Cambridge st | 900 |
| 15 | Francis P. Carr | Driver of hose | 43 | 195 Hampshire st | 900 |
| | *Call Force:* | | | | |
| 59 | Francis P. Scanlan | Foreman | 41 | 204 Hampshire st | 220 |
| 60 | Conrad D. Kinnear | Asst. Foreman | 48 | 284 Broadway | 210 |
| 61 | George W. McIntire | Fireman of engine | 32 | 70 Inman st | 200 |
| 62 | John Fitzgerald | Hoseman | 40 | 46 Washington st | 200 |
| 63 | Frank C. Mullett | " | 35 | 15 Suffolk st | 200 |
| 64 | William T. King | " | 31 | Engine-house | 200 |
| 66 | Hugh T. Barker | " | 36 | 67 Inman st | 200 |
| 65 | James F. Glynn | " | 37 | 284 Broadway | 200 |
| 67 | George P. Bannister | " | 27 | 414 Main st | 200 |

## Chemical Engine Company No. 1.

*House, Central Square Building.*

| No. of Badge. | Name. | Rank. | Age. | Residence. | Salary per yr. |
|---|---|---|---|---|---|
| | *Permanent Force:* | | | | |
| 17 | Lewis C. Clark | Engineman | 43 | Central Square Bl'g. | $900 |
| 18 | William H. Foss | Driver | 48 | Central Square Bl'g, | 900 |

## Relief Engineer.

| No. of Badge. | Name. | Rank. | Age. | Residence. | Salary per yr. |
|---|---|---|---|---|---|
| | *Permanent Force:* | | | | |
| 16 | William H. Lydston | Engineer | 40 | 30 Pearl st | $1,080 |

## Hook and Ladder Company No. 1.

*House, Brattle Square.*

| No. of Badge. | Name. | Rank. | Age. | Residence. | Salary per yr. |
|---|---|---|---|---|---|
| | *Permanent Force:* | | | | |
| 19 | Albert S. Benson | Driver | 43 | 90 Mt. Auburn st | $900 |
| | *Call Force:* | | | | |
| 69 | Charles Emerson | Foreman | 42 | 14 Wright st | 220 |
| 75 | James P. Ewell | Asst. Foreman | 51 | 53 Franklin st | 210 |
| 73 | Charles H. Waite | Ladderman | 41 | 52 Pine st | 200 |
| 76 | Charles A. Sharon | " | 38 | Rear 13 Pine st | 200 |
| 78 | Willlam R. Mitchell | " | 35 | 15 Charles River st | 200 |
| 79 | John A. Bartlett | " | 54 | 132 Auburn st | 200 |
| 80 | John H. McDermott | " | 37 | 25 Somerset st | 200 |
| 68 | James H. Furfey | " | 30 | 12 Somerset st | 200 |
| 70 | Thomas H. McCoy | " | 36 | 90 Mt. Auburn st | 200 |
| 71 | John T. McNamee | " | 32 | 12 Eliot st | 200 |
| 74 | James W. Irwin | " | 33 | 60 Boylston st | 200 |
| 77 | Thomas H. Kneeland | " | 24 | 18 Mill st | 200 |
| 72 | William Stolba | " | 30 | 53 Holyoke st | 200 |

## Hook and Ladder Company No. 2.

*House, Cambridge Street corner Portland.*

| No. of Badge. | Name. | Rank. | Age. | Residence. | Salary per yr. |
|---|---|---|---|---|---|
| | *Permanent Force:* | | | | |
| 20 | Thomas Minnaugh..... | Driver ..... | 34 | 33 Warren st..... | $900 |
| | *Call Force:* | | | | |
| 93 | Thomas L. Hunter..... | Foreman ..... | 47 | 5 Winsor st..... | 220 |
| 81 | James F. Dalton..... | Asst. Foreman..... | 50 | 17 Gore st..... | 210 |
| 87 | Joseph E. Chick..... | Ladderman..... | 37 | 14 Seventh st..... | 200 |
| 82 | Orvill W. Van Duzee.... | " ..... | 41 | 12 Cherry st..... | 200 |
| 86 | William Haley..... | " ..... | 39 | 235 Broadway..... | 200 |
| 91 | Elbridge L. Wheeler.... | " ..... | 43 | 231 Broadway..... | 200 |
| 92 | John Gaughan..... | " ..... | 45 | 15 Ninth st..... | 200 |
| 90 | Albert Smith..... | " ..... | 33 | 18 Green st..... | 200 |
| 89 | Andrew Burke..... | " ..... | 44 | 94 Vine st..... | 200 |
| 84 | John B. Maguire..... | " ..... | 28 | 27 Gore st..... | 200 |
| 88 | George H. Taylor..... | " ..... | 55 | 67 Spring st..... | 200 |
| 85 | Thomas F. O'Connell... | " ..... | 26 | Ninth st..... | 200 |
| 83 | Joseph B. Farmer..... | " ..... | 49 | 46 Winsor st..... | 200 |

## Fire Alarm Telegraph.

*Battery Room, Brattle Square Building.*

| Name. | Rank | Age. | Residence. | Salary per yr. |
|---|---|---|---|---|
| George J. Blaisdell..... | Asst. Supt ..... | 43 | 46 Winthrop st..... | $1,080 |
| Arthur W. Daniels..... | Repairer..... | 34 | 23 Hudson st..... | 900 |
| David J. Campbell..... | Batteryman ..... | 40 | Fire Alarm Station.. | 480 |

# FIRES AND ALARMS.

## From December 1, 1886, to December 1, 1887.

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## DECEMBER.

Friday, Dec. 3, 10.37 A. M. Box 53.

No. 26–28 Charles River Street. Owned by Michael Sullivan. Occupied by several families as dwellings. Cause, sparks from chimney setting fire to roof.

Sunday, Dec. 5, 11.10 P. M. Box 53.

No. 26–28 Charles River Street. Owned by Michael Sullivan. Loss by both fires, $1,250. Insurance, $4,000. Occupied by several families as dwellings. Loss trifling. Cause, overheated stove used in drying-rooms.

Saturday, Dec. 11, 6.53 A. M. Box 9.

Rear First Street. Owned by N. D. Woodbury. Loss, $300. Insurance, $2,700. Occupied by Hazlett and Underhill as shaving-room. Loss, $183. Insurance, $300. Cause, explosion of shaving dust.

Saturday, Dec. 18, 9.17 P. M. Box 89.

Rear Concord Avenue. Owned and occupied by Parry Brothers as brick manufactory. Loss, $53. Insurance, $1,000. Originated in drying-room. Cause, overheated furnace.

Wednesday, Dec. 22, 9.09 A. M. Box 27.

Broadway. False alarm. Cause, smoke mistaken for fire.

Saturday, Dec. 25, 3.12 P. M. Box 43.

No. 45 Banks Street. Owned by John Brassill. Loss, $20. Insurance, $3,000. Occupied by Maurice Joyce as dwelling. Loss trifling. Originated in bedroom. Cause, pipe smoking.

Thursday, Dec. 30, 8.30 A. M. Still.

No. 7 Chester Street. Owned and occupied by J. J. Henderson as dwelling. Loss, $240. Insurance, $8,000. Cause, defective chimney-flue.

Thursday, Dec. 30, 9.50 A. M. Box 87.

Fresh Pond Lane. Occupied by Mt. St. Joseph College. Loss trifling. Originated in first floor. Cause, overheated furnace pipe.

## JANUARY.

Saturday, Jan. 1, 7.43 A. M. Box 31.

No. 289 Cambridge Street. Owned by Jeremiah Callahan. Loss, $35. Insurance, $2,000. Occupied by Edward Flynn as dwelling. Originated on second floor. Cause, child and matches.

Sunday, Jan. 2, 9.25 P. M. Box 25.

No. 471 Main Street. Owned by H. A. Whitney. Loss, $30. Insurance, $6,000. Occupied by G. G. Purdy as provision store. Loss, $64. Insurance, $500. Originated in office. Cause, unknown.

TUESDAY, Jan. 4, 10.16 A. M. Box 152.

Main Street. False alarm. Cause, smoke mistaken for fire.

SUNDAY, Jan. 9, 9.40 A. M. Box 7.

Rogers Street. Owned and occupied by Day Cordage Co. Loss trifling. Originated in boiler-room. Cause, hemp, placed over the boilers to dry, taking fire.

SUNDAY, Jan. 16, 1.05 A. M. Box 59.

College Yard (Holden Chapel). Owned by Harvard College; occupied as recitation-room. No loss. Originated in cellar. Cause, hot ashes.

TUESDAY, Jan. 18, 2 P. M. Still.

No. 163 Windsor Street. Owned by Elizabeth Boyle. Occupied by Edward Brady as dwelling. Loss trifling. Originated in clothes closet. Cause, unknown.

TUESDAY, Jan. 18, 9.56 P. M Box 68.

No. 127 North Avenue. Owned and occupied by J. M. W. Hall as dwelling. Loss. $355. Insurance, $9,500. Originated on second floor. Cause, defective hearth.

SATURDAY, Jan. 22, 8.55 P. M. Still.

No. 17 South Street. Owned by Mary McGowan. Loss, $60. Insurance, $800. Occupied by G. M. Coi as dwelling. Loss, $80. No insurance. Originated in bedroom. Cause, unknown.

## FEBRUARY.

TUESDAY, Feb. 1, 9.37 P. M. Box 74.

No. 191 Dublin Street. Owned by Mary Murphy. Loss, $70. Insurance, $1,500. Occupied by Thomas Correan as dwelling. Cause, child playing with fire.

FRIDAY. Feb. 4, 3.50 A. M. Box 12.

No. 225 Bridge Street. Owned by J. P. Squire. Loss, $200. No insurance. Occupied by Meigs Elevated Railway Construction Co. as car house. Loss, $9,765. Insurance, $19,925. Cause, incendiary.

SUNDAY, Feb. 6, 6.10 P. M. Still.

No. 286 Main Street. Owned and occupied by Ivers & Pond as piano manufacturers. Cause, accidental automatic alarm.

SUNDAY, Feb. 13, 7.43 A. M. Box 9.

No. 103 Bridge Street. Owned by Chaffee & Cummings. Occupied by G. C. Emerson as stable. Loss, $20. No insurance. Cause, breaking of kerosene lamp.

SUNDAY, Feb. 13, 2.49 P. M. Box 27.

No. 123 Harvard Street. Owned by W. A. Ward. Loss, $30. Insurance, $6,800. Occupied by F. E. Flanders as grocery. Loss trifling. Originated in office. Cause, unknown.

MONDAY, Feb. 14, 10.25 A. M. Box 12.

No. 226 Bridge Street. Owned by M. E. Gorman. Loss, $85. Insurance, $1,200. Occupied by John Horgan as dwelling. Originated in bedroom. Cause, unknown.

MONDAY, Feb. 14, 5.32 P. M. Box 26.

Moore Street. Owned by E. D. Brooks. Loss, $25. No insurance. Unoccupied. Originated on third floor. Cause, overheated stove used in drying plastering.

FRIDAY, Feb. 18, 6.17 A. M. Box 28.

Hampshire Street. Owned and occupied by Boston Woven Hose Co. Loss trifling. Cause, ignition of naphtha.

SUNDAY, Feb. 20, 9.30 A. M. Box 59.

No. 63 Boylston Street. Owned by John McLean. Loss, $50. Insurance, $1,000. Occupied by J. J. Spillane as grocery. Cause, squirrel and matches.

TUESDAY, Feb. 22, 6.36 A. M. Box 28.

No. 106 Portland Street. Owned and occupied by James Garvin as horseshoer. Loss, $4. Insurance, $1,000. Cause, sparks from forge.

TUESDAY, Feb. 22, 9.14 P. M. Box 69.

Beech Street. False alarm. Cause, smoke mistaken for fire.

## MARCH.

THURSDAY, Mar. 3, 6.03 P. M. Box 91.

No. 320 North Avenue. Owned by S. F. Woodbridge. Occupied by C. E. Wright as dwelling. Loss trifling. Cause, gas jet setting fire to curtain.

FRIDAY, Mar. 4, 2.13–2.17 A. M. Box 72.

Dudley Street. Owned by E. B. Badger. Loss, $3,350. Insurance, $5,500. Occupied by J. W. Low & Son as curriers. Loss, $59,486. Insurance, $41,000. Originated on first floor. Cause, unknown.

FRIDAY, Mar. 4, 11.23 P. M. Box 72.

Dudley Street. Cause, rekindling of fire. Alarm needless.

SUNDAY, Mar. 6, 3.22 A. M. Box 75.

Rear Dublin Street. Owned by M. T. Morse. Loss, $1,200. Insurance, $1,000. Occupied by Peter Morse as bakery. Owned by M. T. Morse. Occupied by Peter Morse as stable. Loss, $350. No insurance. Occupied by M. W. Sands as stable. Loss, $300. No insurance. Originated in stable. Cause, unknown.

SUNDAY, Mar. 6, 6 P. M. Still.

Brattle Street. Owned by W. L. Whitney. Occupied by several parties. Waste paper in well-room taking fire. Cause, unknown.

TUESDAY, Mar. 8, 3.26 A. M. Box 26.

Rear Main Street. Owned by Allen & Endicott. Occupied by Morrill & Allen as blacksmith shop. Loss trifling. Originated in floor. Cause, hot coal from forge.

MONDAY, Mar. 14, 6.55 P. M. Box 36.

No. 649 Main Street. Owned by E. R. Cogswell. Loss, $25. Insurance, $8,000. Occupied by Samuel McIntire as grocery. Loss, $108. Insurance, $2,300. No 647 Main Street. Occupied by A. J. La Breque as milliner. Loss, $36. Insurance, $1,500. Originated in cellar of grocery. Cause, a lighted match dropped into kerosene oil.

TUESDAY, Mar. 15, 9.50 P. M. Box 32.

No. 211 Columbia Street. Owned by John Collier. Loss, $45. Insurance, $1,500. Occupied by James Sughrue as dwelling. Originated in L. Cause, defective chimney.

SATURDAY, Mar. 26, 1.39 P. M. Box 15.

No. 41 Charles Street. Owned by Hannah Conly. Loss, $26. Insurance, $1,000. Occupied by several families as dwellings. Originated on roof. Cause, sparks from chimney.

## APRIL.

SATURDAY, Apr. 2, 2.15 A. M. Still.

No. 104 Inman Street. Owned by G. L. Kehew, Jr. Loss, $238. Insurance, $3,000. Occupied as dwelling. Originated on first floor. Supposed cause, mice and matches.

SATURDAY, Apr. 2, 5.04 P. M. Box 17.

Main Street. The alarm was given on account of an accident to a freight train on B. & A. R. R.

TUESDAY, Apr. 5, 4.40 P. M. Box 91.

No. 27 Harvey Street. Owned and occupied by Rose O'Brien as dwelling. Loss trifling. Cause, defective chimney.

TUESDAY, Apr. 12, 6.55 A. M. Box 37.

No. 39 Magazine Street. Owned by W. G. Tarbell. Occupied by M. J. Cox as dwelling. Loss, trifling. Originated in bedroom. Cause, cigar smoking.

WEDNESDAY, Apr. 13, 7.10 P. M. Box 12.

No. 209 Bridge Street. Owned and occupied by W. L. Lockhart as coffin manufactory. Loss, $593. Insurance, $11,262. Originated in basement. Cause, friction in machinery.

WEDNESDAY, Apr. 27, 8.11 P. M. Box 32.

No. 115 Elm Street. Owned and occupied by John Fitzsimmons as dwelling. Loss, $65. Insurance, $1,500. Originated in cellar. Supposed cause, mice and matches.

FRIDAY, Apr. 29, 5.50 P. M. Box 15.

Rear No. 83 Vine Street. Owned by Thomas McDonald. Occupied by several families as dwellings. Originated in bedroom. Cause, unknown.

SATURDAY, Apr. 30, 1.40 P. M. Box 7.

No. 5 Vine Street. Cause, smoke mistaken for fire.

## MAY.

SUNDAY, May 1, 8.24 A. M. Box 27.

No. 67 Moore Street. Owned by Edward White heirs. Loss trifling. Occupied as dwelling. Originated on roof. Cause, sparks from chimney

SUNDAY, May 1, 11.57 A. M. Box 15.

No. 35 Vine Street. Cause, smoke mistaken for fire.

THURSDAY, May 5, 7.28 A. M. Box 92.

No. 71 Cushing Street. Owned and occupied by Cornelius Curran as dwelling. Loss, trifling. Originated in unoccupied room. Cause, unknown.

SATURDAY, May 7, 10.10 A. M. Box 25.

Rear 34 Franklin Street. Cause, burning rubbish.

TUESDAY, May 10, 9.18 P. M. Box 53.

Dyke Street. Owned by Sargent heirs. Unoccupied stable. No loss. Cause, incendiary.

WEDNESDAY, May 11, 6.40 A. M. Box 47.

No. 352 Broadway. Owned and occupied by John Kelly as dwelling. Loss, trifling. Cause, defective chimney flue.

THURSDAY, May 12, 1.30 P. M. Box 17.

Rear 332 Main Street. Owned by Simon Alghieri. Loss, $150. No insurance. Occupied by McCormick Bros. as stable. No. 332 Main Street. Owned and occupied by Simon Alghieri as soup manufactory. Loss, $80. Insurance, $4,000. Originated in rubbish outside of stable. Cause, set on fire by boys.

THURSDAY, May 12, 1.38-1.41 P. M. Box 53.

Dyke Street. Occupied by Sargent heirs. Loss, $200. No insurance. Unoccupied stable. Extended to pile of wood, owned by Richardson & Bacon. Loss, $75 ; extended to pile of wood owned by M. W. Sands. Loss, $75. Originated in stable. Cause, incendiary.

FRIDAY, May 30, 4.50 P. M. Still.

Rear State Street. Owned and occupied by M. E. Rideout as lumber-shed. No loss, Cause, sparks from chimney setting fire to roof.

SUNDAY, May 15, 4.10 P. M. Box 31.

No. 5 Hunting Street. Owned and occupied by J. E. McCaffrey as dwelling. Loss, $16. Insurance, $1,200. Originated on first floor. Cause, defective chimney.

THURSDAY, May 19, 8.50 P. M. Box 52.

No. 856 Main Street. Owned by M. J. Conroy. Occnpied by H. A. Morse as dwelling. Loss, trifling. Cause, explosion of lamp.

SUNDAY, May 22, 8.02 P. M. Box 6.

Main Street. Owned and occupied by Kendall & Roberts as a boiler manufactory. Loss trifling. Originated in floor. Cause, supposed hot iron.

MONDAY, May 23, 5.16 P. M. Box 26.

Rear Main Street. Owned by Allen & Endicott. Occupied by Morrill & Allen as store house. Loss, trifling. Cause, sparks from chimney setting fire to roof.

WEDNESDAY, May 25, 8.25 P. M. Box 73.

No. 5 Jackson Street. Owned and occupied by Timothy Braslin as stable. Loss, $115. Insurance, $150. Cause, unknown.

## JUNE.

SATURDAY, June 4, 9.20 A. M. Box 26.

No. 25 School Street. Owned by E. D. Brooks, and occupied by William Wallace as dwelling. Loss, trifling. Cause, lighted pipe in coat pocket.

TUESDAY, June 7, 10.17 A. M. Box 9.

No. 134 Bridge Street. Owned and occupied by Michael Dempsey as dwelling. Loss, $24. Insurance, $1,000. Originated in bedroom. Cause, unknown.

WEDNESDAY, June 15, 2.38 P. M. Box 10.

Rear First Street. Owned by N. D. Woodbury. Occupied by Hazlett & Underhill as boiler room. No loss. Originated in shavings. Cause, sparks from furnace.

FRIDAY, June 17, 6.50 P. M. Still.

Fire in Somerville. Engine Co. No. 5 responded.

MONDAY, June 20, 1.16 P. M. Box 7.

No. 41 Charles Street. Owned by Hannah Conley. Occupied by S. H. Duffy as dwelling. Loss trifling. Originated in clothes-closet. Cause, unknown.

THURSDAY, June 30, 4.13 P. M. Box 134.

No. 163 Norfolk Street. Owned by Moore Bros. Occupied as stable. Loss, trifling. Originated in rubbish. Cause, set on fire by children.

THURSDAY, June 30, 9 P. M. Still.

No. 47 Gore Street. Owned by John Long. Occupied by Catherine Canty as variety store. Loss, $30. No insurance. Cause, lamp setting fire to curtain.

## JULY.

SUNDAY, July 3, 11 P. M. Still.

Elm Street. Cause, bonfire.

MONDAY, July 4, 7.30 A. M. Still.

No. 8 Winsor Street. Owned by Jacob Eaton. Occupied as dwelling. Loss, trifling. Originated on roof. Cause, fire-cracker.

MONDAY, July 4, 10.20 A. M. Still.

No. 30 Winter Street. Owned by Winchester estate. Occupied as dwelling. Loss trifling. Originated on roof. Cause, fire-crackers.

MONDAY, July 4, 11 A. M. Box 27.

No. 172 Harvard Street. Owned and occupied by Francis Robins as dwelling. Loss, $10. Insurance, $1,000. Originated on roof. Cause, fire-crackers.

MONDAY, July 4, 11.30 A. M. Still.

School Street. Cause, burning rubbish and fence.

MONDAY, July 4, 9.04 P. M. Box 27.

No. 252 Broadway. Owned by Charles Lewis. Occupied as dwelling. Loss, trifling. Originated on roof. Cause, fireworks.

MONDAY, July 4, 9.30 P. M. Still.

No. 27 State Street. Owned by M. M. Dow estate. Occupied by C. P. Keith as broom factory. Loss, trifling. Originated on roof. Cause, fireworks.

TUESDAY, July 5, 12.10 P. M. Still.

No. 24 Cherry Street. Owned by Margaret Armstrong. Occupied as dwelling. Loss, trifling. Originated on roof. Cause, fire-crackers.

WEDNESDAY, July 6, 3.36 P. M. Box 41.

No. 106 Pleasant Street. Owned and occupied by W. W. Tobey as dwelling. Loss, trifling. Originated in attic. Cause, unknown.

FRIDAY, July 8, 11.38 A. M. Box 48.

No. 149 Prospect Street. Owned and occupied by John Cahill as dwelling. Loss, $189, Insurance, $5,500. Originated in attic of L. Cause, unknown.

FRIDAY, July 22, 6.52 P. M. Box 32.

No. 400 Cambridge Street. Owned and occupied by Isidore Frankenstein as variety store. Loss, $6. Insurance, $200. Cause, netting in window taking fire.

SATURDAY, July 30, 3.44 P. M. Box 13.

No. 12 Fifth Street. Owned by Mrs. O. E. Langley. Loss, $60. Insurance, $1,000. Occupied by Charles Scharr as dwelling. Originated in basement. Cause, kerosene stove taking fire.

## AUGUST.

WEDNESDAY, Aug. 10, 9.40 P. M. Box 71.

Tannery Street. Owned by City of Cambridge. Loss, $800. No insurance. Occupied by Almshouse Department as store-room. Cause, unknown.

FRIDAY, Aug. 19, 5.04 P. M. Box 26.

State Street. Owned and occupied by M. E. Rideout as planing mill. No loss. Originated in boiler-room. Cause, fire from furnace.

SUNDAY, Aug. 21, 6.46 P. M. Box 42.

No. 20 Hews Street. Owned by John Joyce. Loss, $60. Insurance, $2,000. Occupied by AlfredMcCloud as dwelling. Cause, incendiary.

FRIDAY, Aug. 26, 1 P. M. Still.

College Yard. Matthews Hall. Owned by Harvard College. Occupied as a dormitory. No loss. Originated on roof. Cause, charcoal furnace used in making repairs.

WEDNESDAY, Aug. 31, 11.55 A. M. Still.

No. 6 Cogswell Place. Owned by J. A. Brownson. Occupied by Selina Smith as dwelling. No loss. Originated in cellar. Cause, incendiary.

## SEPTEMBER.

SATURDAY, Sept 3, 11.55 P. M. Box 32.

No. 122 Elm Street. Owned by Bernard Rafferty. Loss, $75. Insurance, $3,500. Occupied by several families as dwellings. Originated in cellar. Cause, unknown.

SUNDAY, Sept. 4, 9.36 A. M. Box 7.

Rogers Street. Owned and occupied by Day Cordage Co. No loss. Originated in boiler-room. Cause, sparks from furnace. Alarm needless.

SUNDAY, Sept. 4, 5.55 P. M. Box 73.

Spruce Street. Cause, false alarm.

TUESDAY, Sept. 13, 8 P. M. Box 73.

No. 15 Jackson Street. owned and occupied by Julia Reynolds as dwelling. Loss, $425. Insurance, $1,100. Originated on first floor. Cause, defective chimney.

WEDNESDAY, Sept. 14, 4.05 P. M. Still.

No. 9 Porter Street. Owned and occupied by David Cahill as dwelling. Loss trifling. Originated on roof. Cause, defective chimney.

SATURDAY, Sept. 24, 6.06 P. M. Box 32.

No. 443 Cambridge Street. Owned by W. L. Lockhart. Occupied by McClosky & Harty as grocery. No loss. Cause, netting in window taking fire.

MONDAY, Sept. 26, 6.52 A. M. Box 27.

No. 67 Moore Street. Owned by Edward White heirs. No loss. Occupied by David Crowley as dwelling. Originated on roof. Cause, sparks from chimney.

WEDNESDAY, Sept. 28, 10.03 A. M. Box 28.

No. 131 Portland Street. Cause, burning chimney.

## OCTOBER.

SATURDAY, Oct. 1, 7.52 A. M. Box 53.

No. 24 Mill Street. Owned and occupied by Suthe Blakie as carpenter. Loss, $682. Insurance, $1,500. Occupied by W. H. Miller as cobbler. No loss. Occupied by Samuel Davis as dwelling. Loss, $40. No insurance. Originated in cobbler's shop. Cause, overheated stove.

THURSDAY, Oct. 6, 9.40 A. M. Box 7.

No. 34 Charles Street. Owned by Jeremiah Boyle. Occupied by several families as dwellings. No loss. Originated in cellar. Cause, burning of waste paper.

THURSDAY, Oct. 6, 11.29 P. M. Box 26.

Rear 402 Main Street. Owned by M. A. Dow estate. Loss, $150. No insurance. Occupied by G. G. Purdy as stable. Loss, $200. Insurance, $100. Occupied by A. F. Howe as stable. Loss, $200. Insurance, $150. Occupied by C. H. Cutting as stable. Loss, $200. No insurance. Cause, supposed incendiary.

FRIDAY, Oct. 7, 11.56 A. M. Box 52.

No. 5 Banks Street. Owned by Frederick Lerner. Occupied by several families as dwellings. No loss. Originated in basement. Cause, fire dropping from open chimney flue.

WEDNESDAY, Oct. 12, 10.31 P. M. Box 32.

No. 295 Cambridge Street. Owned by James Shannon. Loss, $20. Insurance, $8,000. Occupied by Green & Russell as grocery. Loss, $25. Insurance, $1,100. Cause, explosion of kerosene lamp.

TUESDAY, Oct. 25, 11.55 P. M. Still.

Fire in Arlington. Assistance called for. Engine Co. No. 4 responded, under the command of Assistant Engineer Bunker.

SUNDAY, Oct. 30, 1 P. M. Still.

No. 368 Main Street. Owned by Allen & Endicott. Loss trifling. Occupied by Cushman Brothers & Co. as curtain-fixture manufactory. Loss trifling. Originated on first floor. Cause, unknown.

## NOVEMBER.

MONDAY, Nov. 7, 3.50 A. M. Still.

Green Street. F. A. Kennedy & Co., cracker bakery. Cause, accidental automatic alarm.

MONDAY, Nov. 7, 7.02 A. M. Box 35.

No. 295 Broadway. Owned by Dennis estate. Loss, $75. Insurance, $2,500. Occupied by Solomon Pearl as dwelling. Loss trifling. Originated in attic. Cause, child and matches.

THURSDAY, Nov. 10, 3.35 P. M. Box 45.

No. 152 Franklin Street. Cause, smoke mistaken for fire.

THURSDAY, Nov. 17, 8.38 A. M. Box 10.

Thorndike Street. Owned and occupied by H. M. Sawyer & Son as oil clothes manufactory. No loss. Cause, ignition of oil.

SUNDAY, Nov. 20, 5.16 P. M. Box 6.

No. 72–80 Main Street. Owned and occupied by Kendall & Sons as engine and boiler manufactory. Loss, $50,500. Insurance, $56,500. Cause, unknown.

THURSDAY, NOV. 22, 7.12 A. M. BOX 45.

Soden Street. Owned and occupied by G. L. Shorey as laundry. Loss trifling. Originated in roof. Cause, hot-air pipe near wood-work.

TUESDAY, NOV. 22, 1.52 P. M. BOX 73.

Clifton Street. Owned by Newell Mitchell. Occupied by Charles Farnum as dwelling. Loss trifling. Originated in clothes-closet. Cause, unknown.

WEDNESDAY, NOV. 30, 9.20 P. M. BOX 25.

Douglass Court. Owned and occupied by R. B. Rowe as tin-worker and storage. Loss, $200. Insurance, $465. Originated in storage room. Cause, unknown.

# HYDRANTS.

## Ward One.

Appleton Street, corner Highland.
Ash Street, corner Acacia.
Baldwin Street, corner Emmons Place.
Banks Street, corner Flagg.
Banks Street, corner Cowperthwaite.
Banks Street, corner Grant.
Bow Street, corner Linden (post).
Bow Street, opposite Arrow (post).
Boylston Street, corner Winthrop (post).
Boylston Street, corner Eliot (post).
Brattle Street, opposite the estates of Messrs. Longfellow and Hastings.
Brattle Street, corner Ash.
Brattle Street, corner Hilliard.
Brattle Street, corner Fayerweather (post).
Brattle Street, opposite University Press (post).
Brattle Street, corner Lowell.
Brattle Street, corner Fresh Pond Lane (post).
Brattle Street, front of Mrs. Wyeth's estate.
Brattle Street, corner Willard.
Brattle Street, corner Story.
Brattle Street, corner Channing.
Brattle Street, corner Lake View Avenue (post)
Brattle Street, corner Hawthorn (post).
Brattle Street, near Boylston (post).
Broadway, junction Cambridge Street.
Broadway, near junction Cambridge Street (post).
Broadway, corner Prescott Street.
Broadway, corner Trowbridge Street.
Broadway, corner Quincy Street.
Broadway, corner Ware Street.
Broadway, corner Ellery Street.
Buckingham Street, opposite Stevens' barn.
Buckingham Street, corner Concord Avenue (post).
Cambridge Street, corner Trowbridge.
Cambridge Street, corner Sumner.
Cambridge Street, front of Scientific School (post).
Cambridge Street, corner Quincy (post).
Cambridge Street, opposite Felton (post).
Cambridge Street, corner Ellery (post).
Chauncy Street, near Garden (post).
Chauncy Street, corner Langdon.
Church Street, corner Palmer.
Concord Avenue, opposite Craigie Street.
Concord Avenue, corner Follen Street (post).
Concord Avenue, corner Sparks Street (post).
Coolidge Avenue, between Mount Auburn Street and Cambridge Cemetery gate (2 posts).
Craigie Street, midway.
Craigie Street, near corner Sparks.
Cushing Street, opposite Cushing Place (post).
Cushing Street, opposite Vineyard (post).
Cushing Street, opposite Woodlawn Avenue (post).
Cushing Street, southerly end (post).
De Wolf Street, near Cowperthwaite.
Divinity Avenue (post).
Dunster Street, corner South.
Dunster Street, corner Mount Auburn.
unster Street, near Harvard Square (post).
Eliot Street, in elbow (post).
Eliot Street, corner Winthrop (post).
Ellery Street, corner Harvard (post).
Ellery Street, corner Main.
Ellery Street, east side, midway between Broadway and Cambridge Streets.
Elmwood Avenue, midway (post).
Everett Street, south side, midway between North Avenue and Oxford Street.
Fayerweather Street, opposite Reservoir,
Flagg Street, corner Beaver (post).
Foster Street, corner Foster Place (post).
Garden Street, near Chauncy (post).
Garden Street, corner Mason

Garden Street, corner Wallace.
Grant Street, corner De Wolf.
Harvard Square, opposite Charles River Bank (post).
Harvard Street, junction Main (post).
Harvard Street, corner Remington.
Harvard Street, opposite Harvard Block (post).
Harvard Street, opposite Linden (post).
Harvard College grounds, (3 posts).
Hawthorn Street, corner Acacia (post).
Holworthy Street, opposite school house (post).
Holworthy Street, southerly end (post).
Kirkland Street, corner Baldwin.
Kirkland Street, corner Trowbridge.
Kirkland Street, corner Irving.
Kirkland Street, corner Sumner.
Kirkland Street, corner Quincy.
Kirkland Street, opposite Memorial Hall.
Lake View Avenue, 500 feet from Brattle Street.
Lake View Avenue, near Brattle Street (post).
Lake View Avenue, corner Huron Street (post),
Lake View Avenue, on Hill (post).
Lake View Avenue, near engine house (post).
Langdon Street, in elbow (post).
Larch Street, 200 feet from Brattle (post).
Lexington Avenue (post).
Locust Street, corner Holworthy.
Main Street, corner Throwbridge.
Main Street, near Baptist Church.
Mellen Street, corner Oxford.
Mill street, corner Holyoke (post).
Mill Street, corner Charles River.
Mt. Auburn Street, corner Brighton (post)
Mt. Auburn Street, opposite Athens.
Mt. Auburn and Bow Streets.
Mt. Auburn Street, opposite De Wolf.
Mt. Auburn Street, corner Willard (post).
Mt Auburn Street, corner Sparks (post).
Mt. Auburn Street, opposite McDonald's Marble works.
Mt. Auburn Street, opposite railroad stables (post)·
Mt. Auburn Street, near Lowell (post).
Mt. Auburn Street, corner Dunster (post).
Mt. Auburn Street, corner Holyoke (post).
Mt. Auburn Street, corner Athens (post).
Mt. Auburn Street, corner Banks (post).
Mt. Auburn Street, corner De Wolf (post).
Mt. Auburn Street, corner story (post).
Mt. Auburn street, corner Hilliard (post).
Mt. Auburn street, opposite City Building (post).
Mt. Auburn Street, opposite Brewer (post).
Mt. Auburn Street, corner Auburn Place (post).
Mt. Auburn Street, opposite Bath (post.)
Mt. Auburn Street, near Coolidge Lane (post).
Mt. Auburn Street, corner Elmwood Avenue (post).
Mt. Auburn Street, corner Channing (post).
Murray Street, near Charles River.
Murray Street, corner Lyman (post).
North Avenue, corner Chauncy Street.
North Avenue, corner Shepard Street (post.)
North Avenue, corner Holmes Place.
North Avenue, corner Jarvis Street.
North Avenue, front of burial-ground (post),
North Avenue, corner Church Street.
North Avenue, corner Garden Street (post).
Oxford Street, near Jarvis.
Oxford Street, corner Everett.
Phillips Place, corner Berkeley Street.
Prescott Street, corner Harvard.
Prescott Street, between Harvard Street and Broadway (post).
Putnam Avenue, corner Western Avenue.
Putnam Avenne, between Mt. Auburn and Main Streets (post).
Putnam Avenue, corner Flagg Street (post).
Putnam Avenue, opposite Putnam Court (post).
Putnam Avenue, near Hews Street (post).
Putnam Avenue, corner Sands street (post).
Quincy Street, midway between Harvard and Broadway (post).
Riedesel Avenue, corner Brattle (post).
Sands Street, opposite planing-mill.
South Street, corner Dunster (post.)
Sparks Street, corner Vassal Lane (post).
Sparks Street, corner Foster (post).
Sparks Street, opposite Charles T. Russell's (post).
Trowbridge Street, midway between Main and Harvard (post).

Waterhouse Street, opposite Concord Avenue (post).
Waterhouse Street, opposite Follen (post).
Wendell Street, near Carver (post).
Wendell Street, midway between North Avenue and Oxford Street (post).
Willard Street, corner Foster (post).
Worthington Street, near engine-house of Water Works (post).

## Ward Two.

Amory Street, corner Summer (post).
Antrim Street near Broadway (post).
Antrim Street, near Cambridge (post).
Antrim Street, midway (post).
Austin Street, near Essex (post).
Austin Street, corner Prospect (post).
Austin Street, corner Temple (post).
Bigelow Street, midway between Main and Harvard.
Brewery Street, near Hastings (post).
Bristol Street, corner Portland (post).
Broadway, Corner Highland Avenue.
Broadway, corner Hancock Street.
Broadway, corner Antrim Street.
Broadway, corner Tremont Street (post).
Broadway, corner Elm Street.
Broadway, corner Pelham Street.
Broadway, corner Dana Street.
Broadway, corner Ellsworth Avenue.
Broadway, corner Fayette Street.
Broadway, corner Amory Street.
Broadway, corner Norfolk Street.
Broadway, corner Boardman Street.
Broadway, opposite Thayer's Laboratory (post.)
Broadway, near Broadway House.
Broadway, corner Clark Street (post).
Broadway, corner Third Street (post).
Broadway, corner Davis Street (post).
Broadway, corner Brewery Street (post).
Broadway, opposite Mason & Hamlin's building (post).
Broadway, near Sixth Street (post).
Broadway, corner Pioneer Street (post).
Cambridge Street, corner Harding.
Cambridge Street, corner Norfolk.
Cambridge Street, corner Willow.
Cambridge Street, corner Prospect (post).
Cambridge Street, corner Tremont.
Cambridge Street, opposite Fayette.
Cambridge Street, corner Springfield.
Cambridge Street, opposite head of Maple Avenue.
Cambridge Street, corner Marion (post).
Cambridge Street, corner Elm (post).
Cambridge Street, corner Winsor (post).
Cambridge Street, near Mr. Rafferty's house (post).
Cambridge Street, nearly opposite Ellsworth Avenue (post).
Centre Street, opposite No. 14.
Clinton Street, near G. T. Gale's house (post).
Columbia Street, corner Lincoln.
Columbia Street, corner Market.
Columbia Street, corner Hampshire.
Columbia Street, corner Harvard.
Dana Street, corner Chatham (post).
Dana Street, between Broadway and Cambridge Street (post).
Davis Street, corner Broadway.
Elm Street, opposite Lincoln (post).
Elm Street, corner Market.
Essex Street, westerly side, midway between Harvard and Austin (post).
Fayette Street, 500 feet from Broadway (post).
Hampshire Street, corner Amory (post).
Hampshire Street, near Somerville line (post).
Hampshire Street, corner Portland (post).
Harvard Street, corner Pine,
Harvard Street, corner Hancock.
Harvard Street, corner Clark.
Harvard Street, corner Dana.
Harvard Street, corner Moore.
Harvard Street, corner Norfolk.
Harvard Street, corner Portland.
Harvard Street, corner Brewery.
Harvard Street, corner Clinton.
Harvard Street, near railroad crossing (post).
Harvard Street, between railroad crossing and Brewery Street (post).
Harvard Street, opposite Davis (post).
Harvard Street, corner Cherry (post).
Harvard Street, corner Winsor (post).
Harvard Street, opposite Elm (post).
Harvard Street, corner Essex (post).
Harvard Street, corner Prospect (post).
Harvard Street, between Prospect and Inman (post).

Harvard Street, corner Bigelow (post).
Harvard Street, corner Lee (post).
Highland Avenue, east side, midway.
Houghton Street, corner Bolton, in Somerville (post).
Hunting Street, 400 feet from Cambridge.
Inman Street, near Austin.
Inman Street, corner Harvard.
Inman Street, corner Broadway.
Inman Street, opposite No. 110 (post).
Inman Street, opposite Summer.
Jefferson Street, corner Harding.
Jefferson Street, corner Warren (post).
Jefferson Street, opposite Marion (post).
Lee Street, midway between Main and Harvard (post).
Main Street, corner Lee.
Main Street, corner Hancock.
Main Street, opposite Bay.
Main Street, corner Pelham (post).
Main Street, corner Essex.
Main Street, opposite Pleasant.
Main Street, corner Bigelow.
Main Street, junction Harvard.
Main Street, corner Pioneer (post).
Main Street, opposite Rawson & Hittinger's (post).
Main Street, opposite Pearl (post).
Main Street, Gale's driveway (post).
Main Street, corner Third (post),
Maple Avenue, midway between Broadway and Cambridge Street (post).
Market Street, corner Union.
Moore Street, head of Hastings.
Norfolk Street, corner Hampshire.
Norfolk Street, corner Worcester.
Norfolk Street, head of Washington (post).
Norfolk Street, opposite No. 95 (post).
Oak Street, west side, near Somerville line.
Oak Street, opposite Bolton in Somerville (post).
Plymouth Street, corner Berkshire.
Porter Street, corner Bedford (post).
Porter Street, corner Harding (post).
Portland Street, opposite rolling-mill, (post).
Portland Street, corner York (post).
Prospect Street, opposite Mr. Tilton's.
Prospect Street, corner Broadway.
Prospect Street, corner Hampshire.
Prospect Street, corner Main.
Prospect Street, corner Gardner.
Prospect Street, opposite school house, in Somerville (post).
Prospect Street, corner Webster Avenue, in Somerville (post).
Seckel Street, corner Webster Avenue (post).
South Street, corner Earl, in Somerville (post).
Tremont Street, near Wellington's house (post).
Tremont Street, near Hampshire (post).
Tremont Street, opposite Gardner (post).
Tremont Street, west side, 200 feet from Cambridge.
Union Street, corner Hampshire.
Ward Street, corner Horace, Somerville.
Washington Street, corner Munson (post).
Webster Avenue, corner Elm Street.
Webster Avenue, corner Bristol Street.
Webster Avenue, corner Winsor Street.
Webster Avenue, corner Hampshire Street.
Webster Avenue, corner Plymouth Street.
Webster Avenue, corner Cambridge Street (post).
West Boston Bridge.
West Boston Bridge.
West Street, midway (post).
Winsor Street, corner Lincoln.
Winsor Street, corner Hampshire.
Winsor Street, corner Washington.
Winsor Street, near Somerville line (post).
Winsor Street, corner Broadway (post).

## Ward Three.

Binney Street, corner Ninth (post).
Binney Street, near Railroad Crossing (post).
Bridge Street, at Wellington's Wharf (post).
Bridge Street, at Sanborn's Wharf (post).
Bridge Street, corner Prison Point.
Bridge Street, corner Short.
Bridge Ctreet, corner Short (post).
Bridge Street, near Cambridge (post).
Bridge Street, corner Water.
Bridge Street, near Bay State glass-house (post).
Bridge Street, north side, opposite Braman, Shaw & Co.'s.
Bridge Street, opposite Fourth (post).
Bridge Street, between Short and Water (post).

Bridge Street, corner Water (post).
Bridge Strest, corner East (post).
Bridge Street, near bridge (post).
Cambridge Street, opposite First.
Cambridge Street, corner Carson.
Cambridge Street, corner Daily's Alley.
Cambridge Street, corner Third.
Cambridge Street, junction Bridge.
Cambridge Street, corner Sixth.
Cambridge Street, near railroad crossing (post).
Cambridge Street,opposite Seventh (post).
Cambridge Street, opposite No. 141 (post).
Cambridge Street, near Third (post).
Cambridge Street, corner Fourth (post).
Charles Street, corner Fourth.
Charles Street, corner Third (post).
East Street, corner North (post).
Eighth Street, corner Cambridge.
Fifth Street, corner Winter (post).
Fifth Street, corner Charles.
Fifth Street, corner Spring.
Fifth Street, corner Cambridge.
Fifth Street, corner Gore.
Fifth Street, corner Bent (post).
Fifth Street, corner Rogers (post).
First Street, corner Charles (post).
First Street, near Otis (post).
First Street, corner Spring (post).
First Street, corner Vine (post).
Fourth Street, corner Winter (post).
Fourth Street, corner Winter.
Fourth Street, corner Cambridge.
Fourth Street, corner Vine.
Fourth Street, corner Thorndike.
Gore Street, corner Third (post).
Gore Street, corner Fourth.
Gore Street, corner Carson (post).
Gore Street, corner Seventh (post).
Gore Street, between Fourth and Fifth (post).
Gore Street, between Fifth and Sixth (post),
Munroe Street, corner Third (post).
North Street, corner East.
North Street, opposite Short (post).
North Street, near Water (post).
Ninth Street, corner Thorndike (post).
Otis Street, corner Third.
Otis Street, corner Seventh.
Otis Street, corner Ninth (post).
Potter Street, corner Ninth (post).
Prison Point Street, 50 feet north of ice-sheds (post).
Prison Point Street, on railroad track 300 feet from street.
Prison Point Street, near passenger track, (post).
Prison Point Street, on railroad track, 600 feet from street.
Prison Point Street, 400 feet from Bridge Street.
Prison Point Street, near Bridge (post).
Prison Point Street, near ice-house (post).
Rogers Street, corner Third (post).
Second Street, corner Thorndike.
Second Street, corner Otis.
Second Street, corner Cambridge.
Sixth Street, corner Gore.
Sixth Street, corner Potter.
Sixth Street, corner Charles (post).
Sixth Street, corner Spring (post).
Spring Street, corner Second.
Spring Street, corner Third.
Spring Street, corner Fourth.
Spring Street, corner Ninth (post).
Third Street, corner Vine.
Third Street, near Charles (post).
Third Street, corner Bridge (post).
Third Street corner Potter.
Third Street opposite gas-works (post).
Thorndike Street, corner Sixth.
Thorndike Street, corner Fifth.
Thorndike Street, near Woodbury's mill (post).
Thorndike Street, corner Second (post).
Vine Street, corner Fifth.
Vine Street, corner Sixth.
Water Street, near sugar-house.
Yard of American Rubber Co. (post).

## Ward Four.

Albany Street, corner Main (post).
Albany Street, opposite Portland (post).
Austin Street, corner Douglass (post).
Austin Street, corner Norfolk (post).
Blackstone Street, west side, 100 feet from Avenue (post).
Blackstone Street, opposite Riverside Press (post).
Brookline Street. corner Allston.
Brookline Street, corner Hamilton.
Brookline Street, corner Valentine.
Brookline Street, corner Putnam Avenue.
Brookline Street, corner Erie.
Brookline Street, corner Franklin.
Brookline Street, corner Chestnut.
Brookline Street, near Henry (post).

Brookline Street, corner Decatur (post).
Brookline Street, corner Lopez (post).
Brookline Street, corner Watson (post).
Cherry Street, opposite Eaton.
Chestnut Street, corner Pearl.
Columbia Street, corner Austin.
Columbia Street, corner Washington.
Cottage Street, corner Pearl (post).
Eaton Street, corner Pine (post).
Erie Street, corner Pearl (post).
Erie Street, between Pearl and Brookline (post).
Fairmont Street, corner Andrew (post).
Franklin Street, corner Soden (post).
Franklin Street, corner Hancock (post).
Franklin Street, corner Bay (post).
Franklin Street, near the hill (post).
Franklin Street, corner Sydney.
Franklin Street, midway between Brookline and Sydney (post).
Franklin Street, corner Magazine.
Franklin Street, corner Pleasant.
Franklin Street, near Putnam Avenue (post).
Front Street, junction State.
Front Street, corner Columbia (post).
Green Street, opposite Vernon.
Green Street, corner Putnam Avenue.
Green Street, corner Hancock (post).
Green Street, corner Bay (post).
Green Street, midway between Hancock and Vernon (post).
Green Street, corner Vernon (post).
Green Street, corner Pleasant (post).
Green Street, corner Western Avenne (post).
Green Street, corner Pearl (post).
Green Street, corner Brookline (post)
Grigg Street, corner Putnam Avenue.
Henry Street, Near Hastings (post).
Kinnaird Street, corner Bay (post).
Magazine Street, corner Cottage.
Magazine Street, corner Putnam Avenue.
Magazine Street, corner Warland.
Magazine Street, corner Auburn.
Magazine Street, corner Park.
Magazine Street, corner Upton.
Magazine Street, opposite Hamilton.
Magazine Street, opposite Allston (post).
Magazine Street, corner Florence.
Magazine Street, corner Green (post).
Main Street, corner Harrison (post).
Main Street, corner Winsor (post).
Main Street, corner Norfolk.
Main Street, junction Austin (post).
Main Street, north side, opposite Kennedy's bakery.
Main Street, corner Portland.
Main Street, opposite No. 461 (post).
Osborne Street, corner State (post).
Osborne Street, corner Main (post).
Pacific Street, corner Sydney.
Pacific Street, near Albany.
Pearl Street, corner Lake.
Pearl Street, corner Allston (post).
Pearl Street, corner Putnam Avenue.
Pearl Street, corner Decatur.
Pearl Street corner Auburn.
Pearl Street corner Glenwood (post).
Pleasant Street, corner Florence (post.)
Pleasant Street, corner Upton.
Pleasant Street, corner Somerset.
Pleasant Street, corner Park.
Pleasant Street, corner Prince.
Pleasant Street, corner Pleasant Place. (post).
Pleasant Street, corner Chestnut (post).
Pleasant Street, corner Franklin (post).
Portland Street, corner Main (post)
Putnam Avenue, opposite Ballard Place (post),
Putnam Avenue, near River Street (post).
Putnam Avenue, corner River Street (post).
Putnam Avenue, corner Walnut Court (post).
Putnam Avenue, between River and Pleasant Streets. post.
Putnam Avenue, corner Waverly Street (post.)
Putnam Avenue, corner Pleasant Street (post).
River Street, corner Franklin.
River Street, opposite Cottage.
River Street, oposite Laurel.
River Street, corner Blackstone.
River Street, opposite Fairmont.
School Street, corner Clark.
School Street, corner Portland (post.)
School Street, corner Clark (post).
School Street, corner Moore (post).
Somerset Street, corner Andrew (post).
State Street, opposite Village (post).
State Street, near Howe's Factory (post).
Sydney Street, corner Allston.
Sydney Street, corner Putnam Avenue.
Sydney Street, corner Chestnut.
Sydney Street, corner Front (post).
Sidney Street, corner Green (post).
Washington Street, corner Brewery (post).

Washington Street, corner Clark.
Washington Street, corner Portland (post).
Washington Street, corner Moore (post).
Waverly Street, corner Allston (post).
Western Avenue, corner Howard Street.
Western Avenue, corner Kinnaird Street.
Western Avenue, corner Jay Street.
Western Avenue, opposite Soden Street (post).
William Street, between Magazine and River (post).

## Ward Five.

Arlington Street, 500 feet from North Avenue (post).
Bates Street (post).
Beech Street, east side, 20 feet from Orchard.
Bellevue Avenue, corner Avon Hill Street (post).
Belmont Street, corner Montgomery (post).
Blake Street, corner North Avenue (post).
Cedar Street, corner Spruce,
Cedar Street, opposite Norris.
Cedar Street, opposite hotel.
Cogswell Avenue, corner Mead Street.
Concord Avenue, corner Madison Street.
Concord Avenue, opposite Bond Street.
Concord Avenue, corner Walden Street.
Concord Avenue, opposite Eame's estate. (post).
Crescent Street, corner Sacramento (post).
Donnell Street, corner Garden.
Dublin Street, 525 feet from Spruce.
Dublin Street 620 feet from Walden.
Dublin Street, corner Walden.
Dublin Street, corner Bolton.
Dublin Street, corner railroad (post).
Fairfield Street, opposite Mr. Whitney's
Forest Street corner Frost (post)
Garden Court, corner Dublin Street.
Garden Street, opposite Bond.
Garfield Street (post).
Garfield Street, corner Oxford (post).
Garfield Street, corner North Avenue, (post).
Harris Street, corner Frost (post).
Harvey Street, opposite Montgomery.
Hollis Street, at the elbow.
Hubbard Avenue, opposite brick block.
Hubbard Avenue,corner Raymond Street.
Lambert Avenue, corner Walnut Avenue (post).
Lambert Avenue, corner North Avenue (post).
Lambert Avenue, corner Lancaster Avenue (post).
Lancaster Avenue, corner Agassiz Street. (post).
Linnæan Street, corner Avon.
Linnæan Street, corner Bowdoin.
Linnæan Street, corner Raymond.
Martin Street, corner Hurlburt (post).
Milk Street, corner White (post).
Montgomery Street, 300 feet from Harvey (post).
Mt. Vernon Street, corner North Avenue (post).
Norris Street, midway (post).
North Avenue, near railway bridge.
North Avenue, corner Cogswell Avenue.
North Avenue, corner Allen Street.
North Avenue, corner Dover Street (post).
North Avenue, 300 feet west of Tannery.
North Avenue, corner Sacramento Street.
North Avenue, opposite Linnæan Street.
North Avenue, corner Chester Street (post).
North Avenue, corner Arlington Street.
North Avenue, corner Rice Street.
North Avenue, corner Cedar Street.
North Avenue, opposite Tannery.
North Avenue, opposite No. 368 (post).
North Avenue, near Walcott Richardson's gate.
North Avenue, corner Beech.
North Avenue, opposite No. 270 (post)
North Avenue, corner Day Street.
North Avenue, opposite school house (post).
Norton Street, midway.
Orchard Street, near Davenport (post).
Orchard Street, opposite Tenney Court.
Oxford Street, corner Forest.
Oxford Street, corner Sacramento.
Pemberton Street, 500 feet from North Avenue (post).
Pemberton Street, corner Fairfield (post).
Raymond Street, south side (2) near Mr. Dresser's estate.
Reed Street 250 feet from Harvey.
Reed Street, opposite school house.

Rice Street, opposite L. L. Cushing's.
Richdale Avenue, corner Raymond Street.
Richdale Avenue, near Raymond Street. (post).
Roseland Street, corner Frost.
Shepard Street, corner Avon.
Spruce Street, corner Hollis.
Spruce Street, corner Jackson (post).
Spruce Street, corner Reed.
Spruce Street, corner Montgomery.
Spruce Street, opposite school house.
Spruce Street, corner Clay.
Spruce Street, corner Clifton.
Tannery Street (3), between North Avenue and almshouse (posts).
Tuttle Street, opposite Ladd's barn.
Walden Street, corner Mead.
Walden Street, cor. North Avenue (post).
Walden Street, corner Hubbard Avenue.
Wallace Street, in the elbow.
Washington Avenue, corner Dexter.
Washington Avenue, corner Hillside Avenue (post).
Washington Avenue, 400 feet from Linnæan Street (post).
Wyeth Street, corner Garden.

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# RESERVOIRS.

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## Ward One.

College Yard.
Garden Street, north end of Appian Way.

## Ward Two.

Essex Street, corner Austin.
Harvard Street, opposite Broadway Park.

## Ward Three.

Cambridge Street, 70 feet east of Third.
Gore Street, corner North Third.
Junction Bridge and Gore Streets.
Otis Street, corner Fourth.
Thorndike Street, corner Third.
Under New England Glass Company's building.
Under Lowell Railroad machine-shop.

## Ward Four.

Junction Western Avenue and Pleasant Street.
Main Street, corner Brookline.

# CAMBRIDGE FIRE-ALARM TELEGRAPH.

## LOCATION OF BOXES.

2. Prison Point Street, corner Bridge.
4. Gore. J. P. Squire's building.
6. Third, corner Broadway.
7. Third, corner Bent.
8. Thorndike, corner Third.
9. Cambridge, near First.
10. Thorndike near First.
12. Winter, corner Third.
12. North, corner Water (duplicate).
13. Fourth, Engine house No. 3.
14. Sixth, corner Cambridge.
15. Vine, corner Fifth.
16. Broadway, Greely's mill.
17. Washington, corner Brewery.
21. Sidney, corner Allston.
23. Pearl, corner Auburn.
24. Brookline, corner Valentine,
25. Main and Front (junction).
26. Main, corner Osborn.
27. Clark, corner Harvard.
28. Broadway, opp. Page's box factory.
29. Pine, corner Washington.
31. Cambridge, corner Harding.
32. Columbia, corner Cambridge.
34. Hampshire, corner Columbia.
35. Harvard, corner Norfolk.
36. Main, corner Prospect.
37. Pleasant and River (junction).
38. Magazine, corner Lake.
39. Magazine, corner Chestnut.
41. Pleasant, corner Fairmont.
42. Blackstone, opp. Riverside Press.
43. Banks, corner Flagg.
45. Franklin, near Soden.
46. Main, corner Hancock.
47. Broadway, corner Antrim.
48. Inman Square, Engine-house No. 5.
49. Cambridge, corner Baldwin.
51. Broadway, corner Ellery.
52. Mt. Auburn and Main (junction).
53. Mt. Auburn, corner Holyoke Place.
54. Cambridge, Memorial Hall (south side).
56. Kirkland, corner Sumner.
57. Oxford, corner Mellen.
59. Harvard Square, Ramsey's drug [store.
61. Brattle Square, City Building.
62. Mt. Auburn, corner Hilliard.
63. Brattle, corner Mason (junction).
64. Chauncy, corner Garden.
65. North Avenue, corner Shepard.
68. North Avenue, near railroad bridge.
69. North Avenue, Engine-house No. 4.
71. North Avenue, near Tannery.
72. Cedar, hotel building.
73. Spruce near Bay State brick-yard.
74. Dublin, corner Railroad.
75. Walden, corner Raymond.
76. Walnut Avenue, corner Arlington.
78. Concord Avenue, corner Sparks.
79. Brattle, corner Sparks.
82. Brattle, Corner Elmwood Avenue.
83. Mt. Auburn, near railroad stable.
87. Lake View Avenue, near junction Concord Avenue.
89. Concord Avenue, near Hittinger's ice-houses.
91. North Avenue, Cambridge Railroad car- house.
92. Locust, corner Cushing.
114. Ninth Street, Goepper Brothers' barrel factory.
116. Broadway, Towers' piano-action factory.
125. Green, F. A. Kennedy's cracker bakery.
134. City Stable, Tremont, corner Hampshire.
152. Main, corner Bow.
216. Potter, rubber factory yard.

## Instructions to Key Holders.

Alarms to be given from the box nearest the location of the fire.

Don't give an alarm for a fire seen at a distance, unless assistance is called for.

To give an alarm, open the door, pull the hook to the bottom of the slot once, and let go. Each box contains a small bell, which, if heard before you pull, indicates that an alarm has been previously given; and, by listening at the box, you will learn the number of the box from which the alarm was given; but in no case must you pull the hook while the alarm is striking. After giving the alarm, remain at the box, so as to direct the firemen to the fire. Be sure that you lock the box before leaving it.

Citizens are requested to inform themselves where the keys to the signal-boxes are kept, signs suitably inscribed being placed over each box, giving the requisite information.

## Instructions to Fireman.

First alarm will be given by striking THREE or more rounds.

Second alarm will be given by repeating the first.

General alarm will be given by striking THREE BLOWS on the gongs and bells.

In cases where hook-and-ladder companies only are wanted, the call will be given by striking FIVE BLOWS.

Companies not required to respond to first or second alarms will be notified by TWO BLOWS on the gongs of the extinguishment of a fire, that their services will not be needed, and that orders have been given to "make up." Should an alarm be given from any box while a portion of the department is engaged at a fire, the apparatus not in service will respond.

# REPORT

OF THE

# CHIEF OF POLICE.

---

*To the Honorable Mayor and City Council:—*

GENTLEMEN: In compliance with the City Ordinance, I have the honor to present my annual report of the work of the Police Department for the year ending Nov. 30th, 1887.

| | | |
|---|---|---|
| Whole number arrests | | 1,647 |
| Males | 1,521 | |
| Females | 126 | |
| Adults | 1,348 | |
| Minors | 299 | |

**Causes of Arrests.**

| | |
|---|---|
| Assault and battery | 185 |
| Assault, felonious | 11 |
| Assault on officer | 9 |
| Attempt to rescue prisoners | 2 |
| Adultery | 2 |
| Adulterated milk | 8 |
| Bail-bond | 1 |
| Breaking and entering | 30 |
| Bastardy | 14 |
| Bigamy | 1 |
| Concealing leased property | 1 |
| Common drunkards | 5 |
| Common railer and brawler | 1 |
| Cruelty to animals | 7 |
| Carrying concealed weapons | 2 |
| Capias | 3 |
| Contempt of court | 1 |
| Drunkenness | 805 |
| Disturbing the public peace | 67 |
| Disorderly conduct | 6 |
| Delirium tremens | 2 |
| Amount carried forward | 1,163 |

| | |
|---|---|
| Amount brought forward | 1,163 |
| Defrauding boarding-house | 1 |
| Default warrants | 3 |
| Embezzlement | 8 |
| Escaped prisoners | 5 |
| Evading car fare | 5 |
| Exposure of person | 4 |
| Fast driving | 1 |
| False pretences | 3 |
| Forgery | 2 |
| Fornication | 4 |
| Gaming | 3 |
| Incest | 2 |
| Insane | 23 |
| Idle and disorderly | 7 |
| Keeping unlicensed dog | 3 |
| Larceny, simple | 89 |
| Larceny from building | 2 |
| Lewd and lascivious persons | 6 |
| Liquor nuisance | 34 |
| Malicious mischief | 29 |
| Manslaughter | 1 |
| Murder | 4 |
| Non-support | 15 |
| Obstructing horse cars | 3 |
| Pickpocket | 1 |
| Peddling without a license | 10 |
| Refusing to assist an officer | 2 |
| Rude and disorderly conduct | 2 |
| Stubborn children | 5 |
| Suspicious persons | 8 |
| Surety of the peace | 2 |
| Stealing a ride | 8 |
| Safe keeping | 6 |
| Truants | 3 |
| Using profane language | 1 |
| Vagrancy | 21 |
| Violation of city ordinance | 52 |
| Violation Sunday law | 7 |
| Violation of health ordinance | 1 |
| Violation of liquor law | 76 |
| Violation of pool license | 1 |
| Wilful trespass | 21 |
| Total | 1,647 |

| | | |
|---|---|---|
| Whole number of lodgers | | 998 |
| Males | 958 | |
| Females | 40 | |
| Adults | 945 | |
| Minors | 53 | |

| | |
|---|---|
| Amount of property reported stolen was | $3,423 36 |
| Amount of property recovered | $2,658 48 |

## Miscellaneous Business.

| | |
|---|---|
| Accidents reported | 100 |
| Buildings found open and secured | 228 |
| Cases investigated | 677 |
| Dangerous buildings | 3 |
| Dangerous chimneys | 1 |
| Dead bodies found | 19 |
| Defective cesspools | 28 |
| Defective drains and vaults | 28 |
| Defective gas-pipes | 2 |
| Defected hydrants | 5 |
| Defective streets and sidewalks | 514 |
| Defective water-pipes | 33 |
| Defective lamps | 16 |
| Defective fire alarms and clocks | 2 |
| Disturbances suppressed | 208 |
| Dogs killed | 62 |
| Extra duty done by officers (days) | 328 |
| Fire alarms given by officers | 24 |
| Fires extinguished without alarm | 7 |
| Intoxicated persons helped home | 11 |
| Lost children restored | 185 |
| Sick and injured persons assisted | 27 |
| Stray teams put up | 64 |
| Street obstructions removed | 40 |
| Water running to waste | 30 |

## City Property in Use by Police Department.

| | |
|---|---|
| 85 badges | $122 50 |
| 80 billies (short) | 50 00 |
| 18 buckets | 9 00 |
| 130 billies and belts | 233 20 |
| 2 bookcases | 12 00 |
| 4 bedsteads | 12 00 |
| Bedding and blankets | 30 00 |
| 8 books | 26 00 |
| 2 brooms | 50 |
| 2 bureaus | 3 00 |
| 1 buggy | 75 00 |
| 8 clocks | 40 00 |
| 50 chairs | 50 00 |
| 2 coal-hods | 1 00 |
| 4 carpets | 100 00 |
| 1 copying machine | 8 00 |
| 8 desks | 180 00 |
| Amount carried forward | $952 20 |

| | |
|---|---|
| Amount brought forward | $952 20 |
| 3 dust pans | 50 |
| 2 horses | 250 00 |
| 2 sets of harnesses | 40 00 |
| 2 horse blankets | 6 00 |
| 13 pairs of handcuffs | 35 00 |
| 1 hat-rack | 50 |
| 1 ice hatchet and tongs | 1 00 |
| 2 halters | 1 00 |
| 2 straps and weights | 1 00 |
| 3 thermometers | 75 |
| 3 washbowls | 75 |
| 20 lanterns | 20 00 |
| 5 lounges | 30 00 |
| 1 letter scale | 75 |
| 8 mirrors | 14 00 |
| 5 mats | 5 00 |
| 3 maps | 1 00 |
| 6 oil-cans | 1 50 |
| 76 revolvers | 532 00 |
| 1 police van | 200 00 |
| 1 pair of runners | 6 00 |
| Ropes and stakes | 25 00 |
| 3 robes | 15 00 |
| 1 rogues' gallery | 150 00 |
| 6 slates | 1 00 |
| 16 spittoons | 4 00 |
| 1 sleigh | 10 00 |
| 4 stretchers | 6 00 |
| 3 saddles | 15 00 |
| 1 safe | 200 00 |
| 2 stoves | 20 00 |
| telephone line | 300 00 |
| 30 tin dippers | 3 00 |
| 12 towels | 2 50 |
| 8 tables | 24 00 |
| 3 umbrella stands | 2 00 |
| 6 waste baskets | 2 00 |
| 4 water coolers | 4 00 |
| 4 water pails | 1 00 |
| 1 wagon | 30 00 |
| 1 wagon jack | 1 00 |
| 1 wardrobe | 10 00 |
| Total | $2,924 45 |

## Total Cost of the Department for the Year.

| | |
|---|---|
| Appropriation and estimated revenue | $87,000 00 |

EXPENDITURES.

| | |
|---|---|
| Buttons and straps | $80 25 |
| Books for the department | 53 50 |
| Billies | 30 05 |
| Boarding horses | 564 00 |
| Cots and beds for matrons | 23 75 |
| Carriage hire | 60 75 |
| Cambridge Gas Light Company | 492 04 |
| Cambridge railroad | 10 00 |
| Cleaning Stations Nos. 3 and 5 | 125 97 |
| Directories for Police Department | 20 00 |
| Medical attendance | 19 00 |
| Medicines | 12 02 |
| Mitchell (for badges) | 22 50 |
| New England Telephone Company | 112 34 |
| Photographs (for rogues' gallery) | 43 00 |
| Printing | 46 35 |
| Policemen, services of | 72,444 80 |
| Repairs on wagons | 120 15 |
| Repairs on stations | 115 65 |
| Supplies for stations | 285 88 |
| Shoeing horses | 47 82 |
| Salary of Chief of Police | 1,616 66 |
| Salary of Captains | 3,498 90 |
| Travelling expenses | 24 05 |
| Repairs on furniture | 5 00 |
| Money drawn by the Chief to defray expenses in the arrest of criminals, said money to be refunded by the county | 349 45 |
| Total | $80,223 88 |

| | |
|---|---|
| Expenditures | $80,223 88 |
| Receipts | 5,620 54 |
| Transferred to other departments | 4,000 00 |
| Balance showing actual cost | 74,603 34 |
| Balance unexpended | 2,776 12 |

The organization of the force consists of a chief, three captains, ten sergeants and sixty-two patrolmen. One sergeant and thirteen patrolmen are on duty in the day time, including one patrolman who has charge of Station Five; two sergeants are detailed as Inspectors. During the night time there are seven sergeants and forty-nine patrolmen on duty: one as house sergeant at Station One, six as patrol sergeants, two in each police

district, a sergeant with each relief, three patrolmen as house officers, and forty-six officers divided into two reliefs.

It is very gratifying to me to be able to state that the discipline of the force has never been better since its organization.

I would recommend an increase of the force. We are far behind other cities in the number of men allowed, notwithstanding the increase in population, and the amount of territory we have to cover; also the amount of extra work we are called upon to perform.

I would also recommend the new police signal system, and the increase of force as recommended. I feel that we should have a very efficient police force, and our city would be as well protected as any city in the Commonwealth.

It seems proper for me in this report to make some reference to the police signal system which is now in operation in many of our leading cities. The telegraph is one thing that thieves and evil-doers dread, for it circumvents all their skill and cunning.

We already have the telephone connection between cities, and between stations, but this is not sufficient for police purposes under all circumstances. With the introduction of the new system of telephone boxes, instantaneous communication is established between the stations and every patrolman on his beat in the city. This is no longer an experiment, but an actual accomplished fact; and as its value for police purposes can hardly be overestimated, it is hoped that our City Council will provide for its general use in the department.

During the past year there have been no material changes in the department, except the death of an old and valuable officer, Benj. F. Bridden, and Officer James McChristal, resigned.

A determined effort has been made to suppress the illegal sale of intoxicating liquors. During the year we have procured search warrants and searched three hundred and nine places, and have also prosecuted one hundred and ten persons for violations of the liquor law.

The difficulties attending the enforcement of the liquor law are such as never appear in any other criminal case. To obtain evidence in these cases is very difficult; good citizens who would assist an officer in any other matter, decline to make any disclosures in regard to the illegal sale of liquor. It is therefore

obligatory on the officers to depend entirely on their own observations for evidence to convict a person of a violation of this law. Liquor dealers are on the alert and are not likely to violate the law when they know an officer is looking at them, and they are loud in their denunciations of any one else who ventures to testify against them, for they fully appreciate the fact that people shrink from being branded as spies and informers. Officers are very often satisfied, in their own minds, that illegal sales of liquor have been made, but the same evidence that satisfied them and other people would not satisfy a court or jury.

During the past year we have also seized, confiscated and turned over to the Chief of the Massachusetts District Police a quantity of liquors.

The year 1887 has been the most eventful one in the history of our department, owing to the strike of the Cambridge railroad employés which took place in the month of February. My object here is to bear testimony to the fidelity, bravery and heroic conduct of the force on that very trying occasion.

During the past year there have been appointed three police matrons, one for each police district, to take sole charge of all females arrested in our city.

I would suggest to your Honor and City Council the advisability of taking some action in the matter of pensioning some of our old and faithful officers.

In submitting my report I desire to tender my thanks to his Honor Mayor Russell, and to you gentlemen of the City Council, and especially to thank the gentlemen comprising the Committee on Police; also his Honor Judge Orcutt, Mr. Walter W. Pike, City Clerk; City Solicitor Charles J. McIntire; District Attorney Wm. B. Stevens, and Assistant District Attorney Cooney, for their counsel and friendly advice. To them I feel under great obligations, and also to the members of the force for the prompt and efficient manner in which they have discharged the duties of their office.

In closing I have simply to say that I have endeavored to discharge the duties of the office faithfully, economically and impartially. I have the honor to be, gentlemen,

Your obedient servant,

LOTHROP J. CLOYES,

*Chief of Police.*

# REPORT

OF THE

# PROBATION OFFICER.

---

*To His Honor the Mayor and the Board of Aldermen :—*

GENTLEMEN: I hereby submit my third annual report as Probation Officer for the year ending Nov. 30, 1887.

### Probation Work during the Year.

| | |
|---|---|
| Number of persons on probation Nov. 30, 1886 | 26 |
| Number placed on probation since | 89 |
| Whole number in my care during the year | 115 |
| Number of cases disposed of during the year | 86 |
| Number of cases investigated and results recorded | 1350 |
| Number of applications for pardon from the House of Correction investigated | 4 |
| Pardons recommended and granted | 2 |

### Results.

| | |
|---|---|
| Cases placed on file by the Court for good conduct | 66 |
| Conduct good but moved away before term expired | 6 |
| Sent to country homes | 2 |
| Not improved, and sentenced | 5 |
| Ran away to escape sentence | 4 |
| Doubtful cases but showing some improvement | 2 |
| Died | 1 |

Of the persons who were sentenced, and those who ran away to escape sentence, 8 had been convicted of drunkenness and 1 of larceny.

| | |
|---|---|
| Number of males probated during the year | 82 |
| Number of females | 7 |

### Nature of Offences.

| | |
|---|---|
| Assault and battery | 9 |
| Breaking and entering | 4 |
| Common drunkards | 2 |
| Drunkenness, first offence | 54 |
| Drunkenness, second offence | 5 |
| Disturbing the peace | 1 |
| Larceny | 8 |
| Non-support of children | 3 |
| Obtaining goods by false pretences | 1 |
| Obstructing horse car | 1 |
| Stubborn and disobedient | 1 |

### Ages.

| | |
|---|---|
| Under 15 years of age | 6 |
| 15 years of age and under 25 | 33 |
| 25 " " " " " 35 | 26 |
| 35 " " " " " 45 | 19 |
| 45 " " " " over | 5 |

### Nativity.

| | |
|---|---|
| Born in Cambridge | 16 |
| " " other parts of the United States | 45 |
| " " Ireland | 20 |
| " " British Provinces | 5 |
| " " England | 1 |
| " " Scotland | 1 |
| " " Germany | 1 |

In the performance of my duties, I have every morning investigated the cases of all persons under arrest, making a record thereof. I have also been present at the trial of the cases at the daily sessions of the District Court. Whenever there is a case that is in my judgment a proper one for probation, a recommendation is made to the court, and if concurred in, by order of the court the case is continued for a definite time, (generally from two to six months,) to give the defender an opportunity to reform without punishment. I then become surety for his appearance in court at the time appointed, and am responsible for his good behavior.

Visiting the homes, interviewing the friends of probated persons, and looking after delinquents, requires most of my time in the afternoon.

Each probationer is required to report to me at stated inter-

vals, and in order that it may not interfere with their daily occupations, such reports are made at my house in the evening, certain hours being set apart for that purpose.

A detailed report of all cases of probation, and of pardons granted on my recommendation has been made to the Board of Prison Commissioners of the Commonwealth, also a monthly report giving the results of all cases disposed of during the preceding month.

Much of the work of the Probation Officer is of such a nature that it cannot properly be made public, as it might work injury to the parties concerned. But in order that some idea may be given of the class of persons benefited, the following statement is made of the occupations followed by the 89 persons probated during the year :

| | |
|---|---|
| Work at trades | 33 |
| Laborers | 15 |
| Clerks | 9 |
| Drivers and teamsters | 8 |
| School-boys | 7 |
| House servants | 5 |
| Railroad employés | 4 |
| Housekeepers | 2 |
| Boys out of employment | 2 |
| Boy in store | 1 |
| Agent | 1 |
| Hostler | 1 |
| Sailor | 1 |
| Number of single persons | 50 |
| Number of married persons | 39 |
| Number of dependent children in the families of married persons | 119 |

My thanks are due to His Honor the Mayor, and Hon. William H. Orcutt, Judge of the Third District Court of Eastern Middlesex, for their kind words of advice and encouragement.

To the members of the Police Force, I am greatly indebted for information cheerfully given, and for assistance rendered whenever requested.

Respectfully submitted,

FREDERICK W. HAGAR,
*Probation Officer.*

# REPORT

OF THE

# BOARD OF HEALTH.

---

*To the Honorable City Council of the City of Cambridge:—*

In compliance with the public statutes governing boards of health, directing such boards to make an annual report in the month of January of their work done in the preceding year, we herein submit to your honorable body such details of our doings as in our opinion are of public interest, and we also make such recommendations as in our judgment the sanitary welfare of our citizens demands.

We call your attention to the following list of nuisances investigated. As will be seen, 393 of these nuisances came to our knowledge by reason of complaints; the remainder, more than two thousand, were discovered by inspections of officers of the board.

| | |
|---|---|
| Full, overflowing and offensive privy-vaults | 562 |
| Open, defective and leaky privy-vaults | 158 |
| Filthy and defective privy-houses | 129 |
| Offensive and defective water-closets | 66 |
| Swill and garbage thrown into privy-vaults | 26 |
| Offensive and obstructed sluice-vaults | 37 |
| Privies on or near line | 25 |
| No proper privy-vaults | 23 |
| Full and defective cesspools | 77 |
| Defective drainage | 345 |
| No traps under sinks | 185 |
| Leaky and defective traps | 49 |
| Leaky and defective sinks and bowls | 78 |
| Filthy and dirty yards | 95 |
| Swill, filth, ashes, etc., in cellars | 113 |
| Filthy stables and sheds | 88 |
| Manure in yards | 77 |
| Amount carried forward | 2,133 |

| | | |
|---|---|---|
| Amount brought forward | | 2,133 |
| Wet and damp cellars | | 75 |
| Stagnant water on premises | | 89 |
| Swine kept on premises | | 20 |
| Fowl and goats kept on premises | | 40 |
| Miscellaneous | | 97 |
| Total | | 2,454 |
| Number of visits by inspector | | 2,114 |
| Number of second visits | | 973 |
| Number of notices issued | | 907 |
| Number of second notices issued | | 39 |
| Number of special notices issued | | 101 |
| Number of letters written | | 79 |
| Orders of the board served by constable | | 7 |
| Complaints received and investigated:— | | |
| Complaints sustained | 378 | |
| Complaints not sustained | 15 | |
| | | 393 |
| Vaccinations and re-vaccinations | | 322 |
| Rooms fumigated | | 49 |

These nuisances rather increase from year to year than diminish, not because more exist, but for the reason that the inspections by the officers of the board are more careful and extensive, and also because that now notice is taken of even the slightest sanitary defects. While the number of these nuisances has and will increase, their seriousness has greatly diminished; for instance, where a few years ago it was very common to find a broken tile drain in the cellar, or other part of a house, or even an open wooden drain, now such systems of house drainage have been most wholly replaced by iron pipes with leaded joints, and the defects found are usually leaky joints, or defective traps or other slight ones. Offensive privy-vaults still, as in the past, are the largest item in the list of nuisances. This will no doubt continue to be the case until they are driven out of existence by some act of the legislature.

Reference to this list of nuisances will show the general work of the paid officers of the board. This of course is much like the work of all other years, and requires no special comment.

In our report of last year, after describing the offensive condition of the outlet of the Bridge St. sewer, we recommended to the city council "that inquiry be made as to the cause of the nuisance, and that the authorities of the City of Somerville be invited to coöperate.

"*First.* If it is wholly due to the sewage from the Bridge Street sewer.

"*Second.* What particular estates in Cambridge or Somerville contribute the whole or a chief part of the sewage matter causing the nuisance.

"*Third.* What remedies may be applied to lessen the quantity by removing the solid matter in suspension in such sewage, or otherwise, to correct the evil.

"*Fourth.* Whether or not the annual dredging at the outlet will be necessary this year.

"*Fifth.* What relief the intercepting sewer and pumping works proposed by the Metropolitan Sewage Commission will afford.

"*Sixth.* That the City Engineer under the direction of the Board of Health be charged with this inquiry."

As this investigation would incur an especial expense, the board at a meeting held February 1st, 1887, passed the following vote:

"To ask the committee on Finance of the city council, to recommend that the sum of $1,000 be appropriated for the purpose of experimental treatment of the nuisance at the outlet of the Bridge Street Sewer."

In anticipation of the favorable action of the Finance Committee upon the above request, the board at its next regular meeting, held Feb. 25th, appointed Mr. Whitney to confer with the city engineer in relation to the above-named nuisance.

Early in March the health officer. pursuant to the investigation, visited the slaughtering establishment of North & Company for the purpose of inquiring what privilege the proprietors would allow us in the way of carrying on such investigations as we might desire inside their works. Assurance was given of any and every privilege we might require in the pursuance of this investigation. A few days later John P. Squire & Co.'s place was visited by the City Engineers of Somerville and Cambridge and the health officer, and the premises inspected. Ready permission was obtained from Mr. Squire to pursue our inquiry inside his establishment, should we desire to do so. Arrangements were also made with the City Engineer of Somerville to open the manholes of such of the sewers of that city as we should desire for the purpose of collecting samples of sewage, and other investigations.

At a regular meeting of the board held May 27th, an order adopted by the City Council in reference to the investigation of the causes of the aforesaid nuisance was read as follows.

CITY OF CAMBRIDGE,
IN COMMON COUNCIL, May 18, 1887.

*Whereas,* by an order approved February 10th, 1887, so much of the annual report of the Board of Health, for the year 1886, as relates to the nuisance at the outlet of the Bridge St. sewer, and recommends "that an inquiry be made as to the cause of the nuisance, and that the authorities of the City of Somerville be invited to coöperate," was referred to the Committee on Finance, which Committee subsequently gave a hearing thereon to the Boards of Health of the cities of Combridge and Somerville, and

*Whereas,* the Committee on Finance did at the request of the Board of Health of this city, recommend an increase in the sum of Five Hundred Dollars, of the usual appropriation for Health Department, for the purpose of making the aforesaid inquiry, which increase was granted by the City Council and included in the appropriation for the current year; It is therfore hereby

*Ordered,* that the City Engineer and Health Officer under the direction of the Board of Health, be authorized to prosecute an inquiry as to the cause of the nuisance at the outlet of the Bridge St. sewer, and to ascertain and report what measures may be taken as recommended in the annual reports of the City Engineer for the years 1885 and 1886, or otherwise. Also to recommend a just division with the City of Somerville, of the expense of such measures as may be taken as aforesaid.

Also that the Board of Health be authorized to coöperate with the authorities of the City of Somerville in reference to the aforesaid measures.

The following inquiries to be made in reference to the cause of the aforesaid nuisance.

*First.* If it is wholly due to the sewage from the Bridge Street sewer.

*Second* What particular estates in Cambridge or Somerville contribute the whole or a chief part of the sewage matter causing the nuisance.

*Third.* What remedies may be applied to lessen the quantity by removing the solid matter in suspension in such sewage, or otherwise, to correct the evil.

That portion of the expense incurred by authority of this order, to be done by the city of Cambridge, to be charged to the appropriation for Health Department.

Sent up for concurrence.

Attest, EDWARD N. MANNING,
*Clerk.*

In Board of Alderman, May 18th, 1887.
Concurred. Attest, WALTER W. PIKE,
*City Clerk.*

May, 20th, 1887, approved,
WM. E. RUSSELL,
*Mayor.*

Previous to this meeting of the Board a consultation was had with the Chairman of the Board of Health of Somerville in relation to the part Somerville would take in this investigation. It was learned that the matter had been referred by them to the City Council and by this body to the Committee on Sewers. As the Board felt that some immediate action should be taken in this matter, it being important to push forward the investigation as rapidly as possible, and that they might know just what coöperation they were to expect from the authorities of Somerville, the following communication was sent:

*To the Honorable the Board of Mayor and Aldermen of the City of Somerville:—*

The Board of Health of the City of Cambridge having undertaken an investigation to ascertain the particular estates in Cambridge and Somerville which contribute a chief part of the sewage causing the nuisance at the outlet of the Bridge Street sewer, and to devise means to abate the same, invite your Board to coöperate. The Cambridge City Council have appropriated $500.00 for this inquiry.

It will meet our view if you constitute a committee, or the Board of Health with like powers to confer with us.

W. H. WHITNEY,
*Member of the Board of Health.*

CAMBRIDGE, May 24, 1887.

In response to this communication a conference was held between this board and three members of the Committee on Sewers, on the part of Somerville. At this conference the proposed methods of this investigation were fully discussed, and it was concluded that these representatives of the Committee on Sewers of Somerville should report to their full committee and also confer with the Board of Health of their city, after which they were to report their conclusions to us.

A few days later we were informed that this matter had been referred by the City Council of Somerville to their Board of Health with full power, and June 28th, a conference was had with that board, and after full discussion of the matter under consideration the following was passed by the board:

"To coöperate with the Board of Health of Somerville in tracing to their source and devising a remedy for the foul and noxious gases known to exist at times in the district drained by the Bridge St. sewer and supposed to be caused by establishments in said district, the expense of said investigation

to be shared as the construction and maintenance of the Bridge St. sewer has been divided by the General Court.

"That Dr. A. F. Holt, Health Officer of Cambridge, be authorized on the part of the board to act with such person as the Board of Health of Somerville may appoint to preserve such samples of sewage as have already been collected, and to collect others in pursuance of the objects of the investigation of the Bridge St. sewer outlet. Such samples as seem desirable shall be analyzed, and a proper record and certificate shall be kept for future use.

"The expense of this work shall be borne jointly in the usual ratio, the total not to exceed Four Hundred Dollars. Said samples shall remain in the custody of the City Engineer of the city of Cambridge.

"That the Health Officer be authorized on the part of this board with such person as the Board of Health of the city of Somerville may appoint, to employ a competent person to trace and investigate the cause of the foul smell supposed to be caused by establishments in the district drained by the Bridge St. sewer, the expense not to exceed Two Hundred Dollars and to be divided in the usual ratio.

"That the City Engineer be authorized on the part of this board to act with such person as the Board of Health of Somerville may appoint, to procure at the joint expense at the usual ratio, a plan of the sewage systems of the hog-packing establishments on Gore St., Cambridge, and Somerville Avenue, Somerville, said plan to show the estimated quantity of sewage and rainfall in detail, the whole expense thereof not to exceed One Hundred Dollars. Said plan shall remain in the custody of the City Engineer of the city of Cambridge.

"That the clerk send to the Board of Health of Somerville a copy of all votes passed, or which may be passed relating to the joint investigation of the causes and remedies of nuisances now existing at the Bridge St. sewer outlet, and in the district above described."

At the next meeting of this board a communication was received from the Board of Health of Somerville, the same covering the votes passed by that board in relation to the nuisance arising from the Bridge St. sewer, and the noxious odors complained of in the district drained by it.

The votes are exactly like the votes passed by this board June 28th, 1887, except, that the chairman Thomas M. Durrel, M. D., is authorized to coöperate with the person appointed by this board in reference to the inquiries to be prosecuted.

The following is the report of the Health Officer and the City Engineer who were directed to carry on these inquiries on the part of this board:

CAMBRIDGE, Mass., Dec. 31, 1887.

*To the Board of Health of the City of Cambridge:—*

GENTLEMEN: We have the honor to respectfully submit the following detailed report of the investigations to determine if possible the cause or causes of the nuisance about the mouth of the Bridge Street sewer. As you are aware, this investigation was undertaken by the order of both the Board of Health and City Council, and also by the coöperation of the Board of Health of the City of Somerville, the latter, with the understanding that an inquiry should also be made as to the cause of an offensive odor complained of, particularly by the citizens living in East Somerville.

After consultation with Dr. Thomas M. Durrell, Chairman of the Board of Health of Somerville, who, by direction of his Board was associated with us in this inquiry, Dr. F. A. Dunbar of Cambridge was employed to make such chemical analysis of sewage as we might require in pursuing this investigation, and Dr. Charles S. Cahill of Cambridge was employed to investigate the cause of the offensive odor complained of in East Somerville. It was also arranged that Dr. Durrell should have especial charge and direction of the work of Dr. Cahill, and that Dr. Holt the health officer of Cambridge, should have charge of the inquiry relating to the cause of the Bridge St. sewer nuisance; also, that W. S. Barbour, City Engineer of Cambridge, should have charge of the work of procuring the plans of the sewage systems in the works of both Squire's and North's and of determining as near as possible the amount of sewage and rainfall discharged from these establishments. This inquiry was commenced March 18th, 1887, by collecting samples of sewage from the manhole, corner of Winter and Fifth Sts., from the manhole, corner of Bridge and Fourth Sts., just below where the

sewage from Mr. Squire's establishment enters the Bridge St. Sewer, another from the manhole above where the sewage from Squire's enters this sewer, and just below where the sewage from North's enters it, another from the manhole just above where the sewage from North's enters the sewer, another from the drain inside the works of North & Co., near where it enters the sewer, (Bridge St.,) and another from the drain inside the works of Squire & Co. just before it enters the sewer. Since, 86 samples of sewage have been collected and analyzed and a portion of each sample has been preserved in an air-tight glass jar and placed in the custody of the City Engineer.

The results of these analyses have been carefully tabulated and are appended to this report.

All these samples, with one exception, have been collected under the personal supervision of the Health Officer or the inspection of the Board of Health, Charles S. Lincoln, and great care was taken to procure in each collection a fair and medium sample of what was running through the sewer at the time. In making the collections from North's and Squire's we were obliged to enter the drains through the cesspools, but the samples were taken from the sewage as it was running from these, or from the drains immediately below.

Reference to the report of these analyses will show that the samples were largely taken from the drains in the slaughtering establishments of North's and Squire's and the Bridge St. sewer near these concerns, some of the latter being taken below, some between and others above where the drains from these estates enter this sewer. These points were selected for making the collections of course to determine so far as possible the proportionate amount of sewage these concerns are contributing to this sewer. Many samples were also taken from other sewers, principally for the purpose of ascertaining the general character of their sewage. These have no important bearing upon the subject of this inquiry, except those taken from the Binney St. sewer, which are interesting and important for comparison with those taken from the Bridge St. sewer, as both of these drain something near the same area and about the same number of houses, the Bridge St. sewer receiving the additional sewage from the great slaughtering establishments of Squire's and North's.

A comparison of nine samples taken from the mouth of the

Binney St. sewer with an equal number from the mouth of the Bridge St. sewer shows an average of nearly twice as much organic matter in the latter as in the former.

Further reference to these analyses also shows the enormous amount of organic matter in the samples taken from the drains in both Squire's and North's, a quantity sufficient to decidedly change the oder, color and general appearance of the sewage in the great Bridge St. sewer.

For example, in nine samples taken from the sewer above where North's enters, the total ammonia was 41.025 parts in 100.000; below where North's enters 70.15 parts in 100.000, and below where Squire's enters 115.61 parts in 100.000, that is, there is a little less than twice as much organic matter in the sewer after the sewage from North's has entered it than before, and nearly three times as much after the sewage from Squire's has entered.

The refuse matter entering the sewer from these hog-slaughtering establishments is largely animal, and this fact coupled with the results of the analyses, and repeated personal observation as to the character of the nuisance about the mouth of the Bridge St. sewer, demonstrates clearly that this nuisance is wholly due to the sewage from the Bridge St. sewer.

As to the second inquiry, "what particular estates in Cambridge or Somerville contribute the whole or a chief part of the sewage matter causing the nuisance," we conclude, from our investigations, that the estates of John P. Squire & Co. and Charles H. North & Co., contribute the chief part, if not the whole of the sewage matter causing the nuisance.

*Third.* "What remedies may be applied to lessen the quantity by removing the solid matter in suspension in such sewage or otherwise to correct the evil."

For obvious reasons no observations have been made by us looking to the practical solution of this question; we have been informed however, that Mr. Squire has employed an expert to try and determine what can be done in this direction.

*Fourth.* "Whether the annual dredging at the outlet will be necessary this year." To this question we answer, yes, and each year until some more satisfactory means are devised for the abatement of the nuisance.

*Fifth.* "What relief the intercepting sewer and pumping

works proposed by the Metropolitan Sewage Commission will afford." As the proposed plan of this commission is still in embryo, of course we have had no opportunity for observation in this direction, but we can say generally that any plan that will take the discharges from this sewer and carry them somewhere else will permanently abate the nuisance; but what nuisance it may cause wherever it may be emptied, we are unable to say.

In accordance with our instructions there has been prepared under the direction of the City Engineer, by Mr. George A. Kimball, C. E., of Boston, a plan, on which is indicated the establishments of Messrs John P. Squire & Co. and Charles H. North & Co., showing the drainage from these establishments and other matters of interest together with the main sewer in the streets adjoining premises. Mr. Kimball has also determined approximately the quantity of water used in the above named establishments.

A blue-print copy of this plan has been furnished the Board of Health of Somerville, the original being in the keeping of the City Engineer of Cambridge.

We also append the report of Dr. Cahill relating to his observations and conclusions as to the cause of the offensive odor complained of in Somerville as a matter of interest to the citizens of Cambridge.

We also give a tabular statement of the expenses incurred in this investigation, four-ninths of which have been paid by Cambridge, and five-ninths by Somerville, as follows:

| | |
|---|---|
| George A. Kimball, plan | $100 00 |
| C. S. Cahill, M. D., investigating nuisance | 200 00 |
| J. M. Robbins & Co., pails, etc. | 1 12 |
| Cambridge Sewer Department, teaming | 45 88 |
| D. W. Hyde & Co., jars | 8 98 |
| F. A. Dunbar, M. D., analysis sewage | 181 38 |
| | $537 36 |

| | | |
|---|---|---|
| Cambridge, $\frac{4}{9}$ | $238 82 | |
| Somerville, $\frac{5}{9}$ | 298 54 | |
| | | $537 36 |

Respectfully,

ALFRED F. HOLT,
WM. S. BARBOUR.

This investigation is not yet completed, although what is to be done in the future is not yet determined.

*To the Board of Health of the City of Cambridge: —*

GENTLEMEN: According to instructions received from Dr. Holt I made the following analyses of samples of sewage furnished me by him during the spring and summer. These samples were received in numbered bottles and the analyses were marked to correspond with these numbers, all analyses being performed within two or three days from the date of their receipt.

The method of analysis was as follows: In order to get the total solids 50 c. c. of sewage were measured into a previously weighed platinum dish, and evaporated to dryness over a water bath, the dish was then again weighed and the solids found by deducting the weight of the dish. The dish was then heated to redness and when cool again weighed, the loss in weight roughly showing the amount of organic matter contained in the total solids. This was put down as loss on ignition — the remaining mineral matters were returned as residue on ignition.

The amount of nitrogenous organic matter was estimated in the form of free and albuminoid ammonia. The sewage was very largely diluted with distilled water; half a litre of this diluted sewage was then distilled in a retort, the distillate collected in quantities of 50 c. c. until 200 c. c. had come over; 50 c. c. of an alkaline solution of potassic permanganate was then added and the distillation continued in the same manner until 200 c. c. more had come over, when the distillation was stopped. The amount of ammonia in each portion of the distillate was then estimated by means of Nestler's Solution and the amount in the undiluted sewage was calculated from this.

The following figures give the results of these analyses calculated to parts per hundred thousand.

## Analysis of Sewage, Cambridge and Somerville, 1887. Parts in 100,000.

| Date. | Where Collected. | Residue. | Loss on Ignition. | Total Solids. | Free Ammonia. | Alb. Ammonia. | Total Ammonia. | Remarks. |
|---|---|---|---|---|---|---|---|---|
| No. 1. | | | | | | | | |
| Mar. 18, | Cor. Winter and Fifth Streets. | | | 644.00 | 6.850 | 5.850 | 12.700 | Large amount street washings. |
| " 23, | " " " " " | | | 120.00 | 3.900 | 2.700 | 6.600 | Very clear. |
| April 13, | " " " " " | | | 132.00 | 2.500 | 1.560 | 4.060 | |
| " 21, | " " " " " | | | 144.00 | 2.560 | 1.820 | 4.380 | |
| " 29, | " " " " " | | | 83.00 | 2.875 | .925 | 3.800 | |
| June 23, | " " " " " | | | 102.00 | 4.130 | 2.060 | 6.190 | |
| No. 2. | | | | | | | | |
| Mar. 18, | Cor. Bridge and Fourth Streets. | | | 270.00 | 4.800 | 12.300 | 17.100 | |
| " 23, | " " " " " | | | 286.00 | 9.200 | 7.600 | 16.800 | |
| April 13. | " " " " " | | | 306.00 | 5.200 | 4.000 | 9.200 | |
| " 21, | " " " " " | | | 348.00 | 2.960 | 3.880 | 6.840 | |
| " 29, | " " " " " | | | 222.00 | 2 450 | 4.910 | 7.360 | |
| June 23, | " " " " " | | | 284.00 | 5.460 | 2.850 | 8.310 | |
| *July 13, | " " " " " | | | 702.00 | 8.420 | 12.220 | 20.640 | |
| Aug. 15, | " " " " " | 356.00 | 196.00 | 552.00 | 8.820 | 9.900 | 18.720 | |
| " 31, | " " " " " | 324.00 | 332.00 | 656.00 | 4.780 | 5.860 | 10.640 | |
| *(July 13 sample.) | Aug. 10. 2d analysis to show change in ammonia caused by fermentation. | | | 704.00 | 16.720 | 3.420 | 20.140 | For comparison with former analysis see above.* |
| No. 3. | Toward Somerville. | | | | | | | |
| Mar. 18, | First manhole from Fourth Street. | | | 110.00 | 2.640 | 4.400 | 7.040 | |
| " 23, | " " " " " | | | 104.00 | 3.700 | 2.450 | 6.150 | |
| April 13, | " " " " " | | | 152.00 | 3.650 | 2.660 | 6.310 | |
| " 21, | " " " " " | | | 100.00 | 1.120 | 1.460 | 2.580 | |
| " 29, | " " " " " | | | 84.00 | 1.500 | .810 | 2.310 | |
| June 23, | " " " " " | | | 146.00 | 5.610 | 2.830 | 8.440 | |
| July 13, | " " " " " | | | 524.00 | 6.180 | 9.120 | 15.300 | Water very muddy. |
| Aug. 15, | " " " " " | 244.00 | 108.00 | 352.00 | 6.820 | 8.920 | 15.740 | |
| " 31, | " " " " " | 288.00 | 224.00 | 512.00 | 2.660 | 3.620 | 6.280 | |
| Oct. 13, | " " " " " | 234.00 | 198.00 | 432.00 | 4.580 | 18.720 | 23.300 | |
| No. 3.* | Toward Somerville. | | | | | | | |
| April 13, | Second manhole from Fourth Street. | | | 174.00 | 1.700 | 3.350 | 5.050 | |
| July 13, | " " " " " | | | 490.00 | 14.900 | 10.280 | 25.180 | Water very muddy. |
| Oct. 13, | " " " " " | 178.00 | 260.00 | 438.00 | 4.380 | 8.930 | 13.310 | Squire's new sewer enters just above |
| No. 4. | | | | | | | | |
| Mar. 18, | Manhole opposite North's factory. | | | 180.00 | 1.900 | 6.000 | 7.900 | |
| " 23, | " " " " | | | 224.00 | .375 | 1.550 | 1.925 | |
| April 13, | " " " " | | | 84.00 | 1.150 | .750 | 1.900 | |
| " 21, | " " " " | | | 64.00 | 1.120 | .750 | 1.870 | |

## Analysis of Sewage, Cambridge and Somerville, 1887. Parts in 100,000.—*Continued.*

| Date. | Where Collected. | Residue. | Loss on Ignition. | Total Solids. | Free Ammonia. | Alb. Ammonia. | Total Ammonia. | Remarks. |
|---|---|---|---|---|---|---|---|---|
| No. 4. | | | | | | | | |
| April 29, | Manhole opposite North's factory. | | | 64.00 | 2.170 | 1.210 | 3.380 | |
| June 23, | " " " " | | | 103.00 | 3.120 | 1.810 | 4.930 | |
| July 13, | " " " " | | | 184.00 | 4.480 | 3.620 | 8.100 | |
| Aug. 15, | " " " " | 92.00 | 60.00 | 152.00 | 3.460 | 1.820 | 5.280 | |
| " 31, | " " " " | 84.00 | 162.00 | 246.00 | 1.520 | 3.220 | 4.740 | |
| No. 5. | | | | | | | | |
| Mar. 23, | From North & Co.'s factory. | | | 612.00 | 9.700 | 7.650 | 17.350 | Very bloody and offensive. |
| April 13, | " " " | | | 2698.00 | 13.600 | 161.720 | 175.320 | " " " " |
| " 21, | " " " | | | 612.00 | 10.440 | 21.080 | 31.520 | " " " " |
| " 29, | " " " | | | 3674.00 | 15.760 | 17.870 | 33.630 | |
| June 16, | " " " | | | 1926.00 | 46.600 | 64.200 | 110.800 | |
| " 23, | " " " | | | 1702.00 | 94.240 | 58.920 | 153.160 | |
| Aug. 15, | " " " | 376.00 | 2404.00 | 2780.00 | 48.600 | 33.400 | 82.000 | Thick deposit of grease. |
| " 31, | " " " | 596.00 | 388.00 | 984.00 | 22.140 | 24.240 | 46.380 | " " " " |
| Sept. 22, | " " " | 124.00 | 1392.00 | 1516.00 | 22.400 | 132.800 | 155.200 | |
| " 29, | " " " | 1416 00 | 536.00 | 1952.00 | 5.480 | 18.960 | 24.440 | |
| Oct. 13, | " " " | 88.00 | 254.00 | 342.00 | 16.100 | 48.300 | 64.400 | |
| No. 6. | | | | | | | | |
| April 21, | From Squire & Co.'s factory. | | | 562.00 | 11.560 | 11.160 | 22.720 | Very bloody and offensive. |
| " 29, | " " " | | | 2588.00 | 36.260 | 109.620 | 145.880 | " " " " |
| June 16, | " " " | | | 232.00 | 3.740 | 3.810 | 7.550 | |
| " 23, | " " " | | | 1942.00 | 76.820 | 40.860 | 117.680 | |
| Aug. 15, | " " " | 152.00 | 252.00 | 404.00 | 12.720 | 10.940 | 23.660 | |
| " 31, | " " " | 464.00 | 2060.00 | 2524.00 | 33.400 | 70.800 | 104.200 | |
| Sept. 22, | " " " | 196.00 | 2648.00 | 2844.00 | 27.600 | 241.400 | 269.000 | |
| " 29, | " " " | 968.00 | 316.00 | 1284.00 | 38.600 | 30.900 | 69.500 | |
| Oct. 13, | " " " | 318.00 | 278.00 | 596.00 | 10.150 | 22.050 | 32.200 | |
| No. 7. | | | | | | | | |
| April 5, | Mouth Bridge Street Sewer. | | | 350.00 | 2.200 | 3.200 | 5.400 | |
| May 24, | " " " " | | | 846.00 | 1.912 | 1.136 | 3.048 | |
| June 3, | " " " " | | | 736.00 | 3.143 | 4.160 | 7.303 | |
| Aug. 31, | " " " " | 636.00 | 328.00 | 964.00 | 4.520 | 7.260 | 11.780 | |
| Sept. 22, | " " " " | 688.00 | 468.00 | 1156.00 | 17.400 | 34.200 | 51.600 | |
| " 29, | " " " " | 806.00 | 266.00 | 1072.00 | 7.120 | 3.320 | 10.440 | |
| Oct. 13, | " " " " | 516.00 | 250.00 | 766.00 | 9.240 | 5.160 | 14.400 | |
| " 22, | " " " " | 298.00 | 738.00 | 1036.00 | 4.550 | 12.250 | 16.800 | |
| " 24, | " " " " | 528.00 | 264.00 | 792.00 | 4.050 | 6.150 | 10.200 | |
| " 25, | " " " " | 488.00 | 424.00 | 912.00 | 5.950 | 14.950 | 20.900 | |
| " 26, | " " " " | 558.00 | 334.00 | 892.00 | 14.300 | 10.350 | 24.650 | |

## Analysis of Sewage, Cambridge and Somerville, 1887. Parts in 100,000—*Continued.*

| Date. | Where Collected. | Residue. | Loss on Ignition. | Total Solids. | Free Ammonia. | Alb. Ammonia. | Total Ammonia. | Remarks. |
|---|---|---|---|---|---|---|---|---|
| No. 8. | | | | | | | | |
| May 23, | Mouth Binney Street Sewer. | | | 493.00 | 1.810 | 2.29 | 4.100 | |
| June 3, | " " " " | | | 304.00 | 1.890 | 2.14 | 4.030 | |
| July 13, | " " " " | | | 1140.00 | 11.200 | 20.60 | 31.800 | Water very muddy; smells strong of distillery. |
| Sept. 22, | " " " " | 222.00 | 162.00 | 384.00 | 2.940 | 1.84 | 4.780 | |
| " 29, | " " " " | 272.00 | 132.00 | 404.00 | 3.820 | 3.34 | 7.160 | |
| Oct. 13, | " " " " | 208.00 | 180.00 | 388.00 | 3.120 | 3.42 | 6.540 | |
| " 22, | " " " " | 136.00 | 72.00 | 208.00 | 2.980 | 1.72 | 4.700 | |
| " 24, | " " " " | 72.00 | 104.00 | 176.00 | 4.220 | 1.56 | 5.780 | |
| " 25, | " " " " | 108.00 | 144.00 | 252.00 | 5.060 | 3.96 | 9.020 | |
| " 26, | " " " " | 138.00 | 72.00 | 210.00 | 4.140 | 1.82 | 5.960 | |
| No. 9. | | | | | | | | |
| May 24, | Mouth Oxford Street Sewer. | | | 62.00 | 1.985 | 1.22 | 3.205 | |
| June 3, | " " " " | | | 22.00 | 1.790 | 1.04 | 2.830 | |
| Sept. 22, | " " " " | 38.00 | 98.00 | 136.00 | 3.060 | 1.68 | 4.740 | |
| No. 10. | Mud from near mouth Bridge Street Sewer. Diluted one half. | | | | | | | |
| April 5, | | | | 19678.00 | 24.600 | 264.00 | 288.600 | Well filled with bristles. |
| No. 11. | | | | | | | | |
| Oct. 22, | Somerville Sewer near ft. Mt. Vernon St. | 10.00 | 38.00 | 48.00 | 2.720 | 1.22 | 3.940 | From mouth of Sewer. |
| " 24, | " " " " " " " " | 20.00 | 94.00 | 114.00 | 1.960 | 1.46 | 3.420 | " " " " |
| " 25, | From manhole just above the mouth of the sewer. | 108.00 | 490.00 | 598.00 | 2.220 | 5.72 | 7.940 | Considerable molasses or sugar in these specimens. |
| " 26, | | 176.00 | 608.00 | 784.00 | 2.120 | 10.68 | 12.800 | |

| Where taken. | Numbers. | Number of Samples. | Total Solids. | Free Ammonia. | Alb. Ammonia. | Total Ammonia. |
|---|---|---|---|---|---|---|
| Corner Bridge and Fourth Streets | 2 | Nine. | 3626.00 | 52.090 | 63.520 | 115.610 |
| First manhole from Fourth | 3 | Nine. | 2084 00 | 33.880 | 36.270 | 70.150 |
| Manhole opposite North's factory | 4 | Nine. | 1301.00 | 20 295 | 20.730 | 41.025 |
| North & Co.'s factory | 5 | Nine. | 16504.00 | 283.480 | 521.880 | 805.360 |
| Squire & Co.'s factory | 6 | Nine. | 12976.00 | 250.850 | 541.540 | 792.390 |
| Mouth Bridge Street Sewer | 7 | Nine. | 7718.00 | 54.135 | 76.836 | 130.971 |
| Mouth Binney Street Sewer | 8 | Nine. | 3749.00 | 37.040 | 40.870 | 77.910 |

FRANK A. DUNBAR, M. D., *Analyst.*

*To the Boards of Health of Cambridge and Somerville:—*

GENTLEMEN: In regard to the nuisance troubling residents of East Somerville, I make the following report. The odor complained of only occurs at night between the hours of six and nine. It only occurs when the wind is blowing in a certain direction, namely, south-westerly, and does not always occur when the wind is blowing in that direction. The odor is confined to the territory between Franklin and Mt. Vernon streets and between Washington street and the top of the hill. The smell cannot be traced on the southerly side of Washington street; here the land is low and the smell is lost; at times, however, it is found on Somerville avenue. The odor to travel such a distance as it necessarily must, and to cover so much territory must be of considerable volume and must probably come from some height, and floating over the low lands on the southerly side of Washington street, fall on the hill beyond. The smell is, I think, without doubt, that of grease rendering.

The first place visited was that of Charles H. North & Co. on Medford street; here the rendering of grease is done from six to twelve at night; the process for getting rid of the foul gases and odors arising from the rendering tanks is as follows and seems to be very thorough and satisfactory: the gases arising from the rendering tanks are conducted into a condenser at the top of which is a perforated plate. Just above this plate a jet of water is continually flowing in and, falling on the plate, is broken up into a spray and becomes thoroughly mixed with the gases. Below the perforated plate in the condenser are a number of other plates arranged on either side of the condenser and placed obliquely, which serve to more thoroughly mix the gases and water and also to prevent any backing up. From here the gases pass through a series of tanks of water, and are then siphoned off into a tank in the cellar into which is continually flowing a mixture of sulphuric and nitric acids and chlorine water, which are supposed to destroy any odors or gases which might remain; from here it passes directly to the sewer. There is no connection between the tanks or condenser with the chimney or open air. Here eleven rendering tanks are used and everything seems to be done to keep the place neat and clean, but the floors and all parts of the building and everything it contains are thoroughly soaked with grease, &c., and it is impossible to prevent some odor. On subsequent visits to the establishment, twice, we found the chemicals not being used, and when the watchman was spoken to about it he said he used his judgment about it and used them when he thought it was necessary. In the yard of this establishment just inside the fence near the railroad track is a catch-basin (as seen on the map) from which a very foul and offensive odor is always given off.

The next place visited was that of Christopher Barry on South street. Here was found one rendering-tank in an old barn. Also in the barn were a number of barrels of rotten, stinking grease and fat of all kinds uncovered and exposed to the air and heat, from which an almost unbearable stench was given off. The place is very dirty and filthy in all respects, and should, I think, be adjudged a nuisance and closed up.

He claimed that he never rendered grease at night, but always in the day time. I visited it a number of nights, but never found tank in use.

At the McLean Asylum we found one open kettle in a shed on the grounds which had formerly been used for rendering, I understand, but is not at the present time, all their grease being tried out in the kitchen in the daytime.

At a place on Rutherford avenue, Charlestown, run by Mr. Furbush, the rendering is done in a practically open kettle; the rendering tank has simply a heavy cover which is not fastened down in any way except by the weight of the cover. No condenser is used, but the gases are conducted by a pipe into the chimney and are discharged just over the fire where they are supposed to be burnt up. Here, strange to say, no bad odors such as one would expect are to be found. Here, moreover, all the rendering is done in the daytime so that it could not account for this nuisance.

At John P. Squire's establishment the following condition of things was found: Everything about the place seemed to be as neat and clean as possible and comparatively no bad odors were to be found. Here twenty-seven immense rendering tanks are used, and from these the gases are conducted into a condenser, at the top of which is continually flowing in a jet of water. Here the gases are condensed and pass from here to the sewer. But at the top of this condenser opens a pipe which runs from here directly to the chimney and which is supposed to carry off any gases which may remain and burn them up. Just where the pipe opened into the chimney no one seemed to know. Now it seems to me that these gases, being carried off into the chimney in this way and being discharged above the fire, would be, owing to the great draught, swept up the chimney before being burnt. Moreover a good many of these gases are non-combustible, and so would necessarily be driven up the chimney and escape from its top anyway.

Now it seems to me that the foul odors, or most of them, come from the top of this chimney and float across the low land on the southerly side of Washington street and fall on the highland beyond. Again, all the rendering is done here at night from six to twelve, and the time when the odor is noticed is just when they are putting on their tanks and when the worst smell would be given off. Why it should not always occur when the wind is blowing in that direction it is impossible to say unless it was due to some difference in material rendered. I think if the pipe running from the chimney to the condenser is closed the nuisance will be abated.

Respectfully,

CHARLES S. CAHILL.

Alewife Brook still continues to be a source of complaint, more particularly from the citizens of Arlington and Somerville. This brook has become, by emptying into it the discharge from three large sewers and the drainage from Niles Brothers' hog-slaughtering establishment (the latter contributing the greater part of the filth), little more than an open sewer, that in cer-

tain places, more particularly near Broadway, Somerville, at times is more or less offensive.

We are well aware that your honorable body, as well as our citizens, are anxious to relieve our neighbors as well as ourselves of this nuisance. This would have been done some years ago, but for the enormous expense attending it, an expense that will not be required if the proposed marginal sewer, so long talked of, becomes a fact. If this sewer or some other, to relieve all the cities and towns this side of Charles River, is not built in the near future, Cambridge will probably be obliged by her neighbors, if not for her own relief, to find some other outlet for the sewage now discharged into Alewife Brook.

As usual, repeated complaints have been made of the offensive, noxious odors from Niles Brothers' slaughter-house, both by parties living in the vicinity and others driving on Concord Avenue. From the reports of the health officer we are satisfied these complaints are well founded.

These odors are such as are always associated with hog-slaughtering establishments. They are much worse at some times than at others, depending upon many different conditions, such as the state of the atmosphere, direction of the wind, and the manner in which the business is carried on. These disagreeable odors complained of are, we believe, unavoidable to a certain extent in and about these hog-slaughtering establishments, and as Niles Brothers have the same appliances as other concerns we see no reason why their establishment should be more offensive thanthat of others doing the same business. This firm have been notified that they must use every possible precaution to prevent the escape of these noxious gases, and a hearing has been ordered to take place early in January at which all the complainants, as well as the neighbors, have been requested to appear and testify.

We again call the attention of the City Council to the Webster school house and to our report of last year relating to it.

The unremitting care necessary to keep these sluice-vaults in decent sanitary condition has been neglected and several complaints have been made of the foul odor arising from them. As there is no reasonable expectation that these vaults will be cared for in the future any better than they have been in the past, we earnestly urge the immediate necessity of the removal

of these sluice-vaults, as a sanitary measure, and their replacement by some proper form of water-closet.

We also call your attention again to the necessity of doing away with all the privy-vaults attached to school houses and replacing them with water-closets. We also again remind your honorable body of the offensive water-closets in the City Hall, and the Central and Brattle Square Buildings. Nothing has been done to relieve this condition of things, notwithstanding the recommendation of this board last year.

On Nov. 21st the board visited the water-shed of the new Stony Brook water supply. The quantity of water discharged by Stony Brook into the reservoir seemed much larger than is usual at this time of year; as it flows over the steep stony descent near the upper end of the reservoir it shows a well-marked yellowish tinge. The channel of Cherry Brook was full as well as that of Stony Brook as far up as where they cross the old road from Weston to Lincoln. The water of both of these at this point presents the same yellowish tinge observed below.

About three miles from the reservoir, near the village of Lincoln, is Beaver Pond, the origin of one of the branches of Stony Brook. This pond has an area of about 18 acres; the water is of a decidedly yellow color, and its borders are made up largely of boggy meadows, varying in width from a few yards to 40 or 50 rods; the mud near the outlet of the brook is several feet deep. This pond is supplied by a small brook that rises in Lexington. Stony Brook, from this pond to the reservoir, runs through a series of small meadows, varying in width from a few yards to two or three hundred. These meadows are largely under cultivation.

Hobbs Brook, that furnishes about half the water of this new supply, rises in Lexington, about five miles from where it flows into Stony Brook, about one mile from the reservoir. The water of this brook is a little less yellow than that of Stony Brook; it flows through a series of cultivated meadows varying in area, but none of them very extensive. This water-shed is generally clean, and probably so far as its sanitary condition is concerned is as good as any in this vicinity of equal area, but it is largely made up of farms, many of which are under a high state of cultivation, and further, this district, like all others within twenty miles of Boston, is increasing rapidly in popula-

tation. Within the last two or three years quite a number of houses have been built in the immediate vicinity of the junction of Stony and Hobbs Brooks, as well as two or three large buildings to be occupied by Hook & Hastings, organ builders, employing more than a hundred men; and we learn that this firm are to build fifty or more houses in the vicinity of their factory for the accommodation of their employés. A water supply with such surroundings can only be kept pure and free from contamination by the most unremitting care and watchfulness. The terrible results that may come from the contamination of a public water supply by even a single family, are well illustrated by the epidemic of typhoid fever that occurred in the town of Plymouth, Penn., four years ago. This town of 8,000 inhabitants is partly supplied with water from a small mountain stream. A case of typhoid fever occurred in a house near the border of this stream and the excretions from the bowels of this patient were thrown on the snow near its banks; in a sudden thaw and freshet these were swept into the current and carried into the basin from which the water was distributed to the town, and in the next month or six weeks over 900 cases of this disease appeared among the people using the water. Many other instances of such results are recorded.

Our citizens can only be assured against such dangers as these by the most careful and repeated policing of the whole water-shed; every possible source of contamination should be ferreted out, particularly house-drains near the borders of the several brooks, and such dangers as cannot permanently be done away with, should be unremittingly watched.

May 10th a fatal case of small pox occurred in a house on Cambridge Street.

This patient, Michael Hogan, aged 27 years, immediately preceding his death had been sick with measles for a number of days under the care of Dr. Couch of Somerville.

On the morning of the 10th (the day of the death) Dr. Couch saw the patient, when he found him much worse than when last seen, two or three days before, and that he was covered with a prominent vesicular eruption, the vesicules on the face and arms being particularly large, or about the size of a No. 2 shot. Dr. E. H. Stevens saw the patient in consultation a few hours later, and both he and Dr. Couch pronounced the disease small pox.

This board was promptly notified, and the Health Officer visited the house about 6 o'clock P. M., when he found the man had died a short time before.

At his examination he reports the body covered with a coarse vesicular eruption, some of the vesicules becoming pustular and some of them slightly umbilicated. On inquiry it was learned that this man had been visited about two weeks before his death by relatives living in Lowell and that these relatives had lately recovered from some eruptive disease. The following letter of inquiry was sent to the Board of Health of that city:

CAMBRIDGE, May 11th, 1887.

*To the Board of Health of Lowell:—*

GENTLEMEN: I most respectfully inform you that Michael Hogan, aged 27 years, died here yesterday about 5 o'clock P. M. His father and sister from your city (No. 19 Summer Street) were here with him, and it is reported to me that there have been three or four cases of sickness at their house lately which three of your physicians declared to be small pox, but another doctor called later pronounced them cases of German measles and they went for that.

Will you please investigate the matter if you have not already done so, and inform us as to the particulars at your earliest convenience? The father's name he gave us as Thomas and the sister Bridget.

Yours truly,

ALFRED F. HOLT, M. D.,
*Health Officer.*

In response to this letter the following reply was received:

OFFICE OF BOARD OF HEALTH,
LOWELL, MASS., May 13, 1887.

DR. A. F. HOLT:

*Dear Sir:*—Your letter of the 11th inst. is received. Several weeks ago a case was reported to us from No. 19 Summer Street that had been treated as measles, but the eruption on the face resembled that of small pox.

On examination at the first sight it had that appearance, and to be safe the case was isolated and watched. On further examination we were satisfied there was no small pox, and there has been no sign of it here since.

This was the brother of two children who had the measles. Our superintendent called this morning at No. 19 Summer Street and the family say Michael Hogan has not been there since Christmas. It may be so and may not.

Yours respectfully,

NATHAN ALLEN.

It would seem quite clear that the suspected case at Lowell was one of mild small pox, and that Hogan took the disease

from this relative who had visited him about two weeks before his death. Hogan died on the second or third day of the eruption. He had unquestionably had the measles (there was another case in the house that was just recovering when Hogan was taken sick), and on the seventh or eighth day, and when the eruption of this disease had pretty much disappeared, the eruption of small pox appeared.

The body was at once removed and buried that night and the next morning at five o'clock vaccination, not only of the household, where the case occurred, but of the neighborhood (a thickly populated one) was undertaken. There were no other cases, although three young men had slept in the room with Hogan the night before his death and one of them in the same bed, and some of the inmates of the house and quite a number in the neighborhood had never been vaccinated. There is no doubt that the prompt and thorough vaccination of all the people in the vicinity, whether previously vaccinated or not, prevented other cases.

The number of cases of scarlet fever, diphtheria and typhoid fever reported is sixty less than last year, and the number of deaths nineteen less.

The city has fortunately escaped the great increase in the number of cases of some of these diseases, particularly scarlet fever that has occurred in some of the neighboring towns and cities.

Your attention is respectfully called to the number of deaths occurring during the year, tabulated and published with this report. The number is 1325 against 1190 last year.

This increase in the number of deaths is accounted for by the increase in population and the fact that the number occurring last year was below the average of former years.

D. H. THURSTON,
H. P. WALCOTT,
WM. H. WHITNEY,
} *Board of Health.*

OFFICE OF THE BOARD OF HEALTH, CITY HALL,
CAMBRIDGE, December 28, 1887.

*To the Honorable City Council:—*

GENTLEMEN: The following is the annual statement of the expenditures made by this board during the financial year ending November 30, 1877:

The appropriation made for the Health Department was:

| | |
|---|---|
| For ordinary expenses of the Board | $3,000 00 |
| For investigation of the caase of the nuisance at Bridge-street sewer outlet | 500 00 |
| | $3,500 00 |

The expenses were as follows:—

| | | |
|---|---|---|
| Analyses of water | $10 00 | |
| Blank books, printing, etc. | 12 50 | |
| Burial of animals | 18 60 | |
| Car tickets | 65 00 | |
| Cow-pox points for vaccinating | 14 20 | |
| Directory | 2 50 | |
| Disinfectants | 6 78 | |
| Disinfecting certain infected districts | 35 38 | |
| Expenses attending small pox case | 48 75 | |
| Expenses of Health Officer, attendance at National Health Association, Memphis, Tenn. | 65 50 | |
| Expenses of visit of Board to Stony Brook, and examination of sources of water supply | 16 50 | |
| Expenses of investigation of cause of nuisance at outlet of Bridge-street sewer, four-ninths of cost paid by city of Cambridge | 230 71 | |
| Postal cards and postage stamps | 37 70 | |
| Sundry expenses, expressage, etc. | 4 95 | |
| Salary of Health Officer | 1,500 00 | |
| Salary of Inspector | 900 00 | |
| Salary of Clerk of Board | 150 00 | |
| Total expenditures | | $3,119 07 |
| | | $380 93 |

The balance unexpended may be divided as follows:

| | |
|---|---|
| Balance of amount usually appropriated | 111 64 |
| Balance of amount set apart for Bridge-street sewer investigation | 269 29 |
| Total amount of balance | $380 93 |

By direction of the Board of Health,

JOHN McDUFFIE,
*Clerk.*

# APPENDIX.

## Causes of Death in 1887.

ARRANGED ALPHABETICALLY.

| Diseases. | January. | February. | March. | April. | May. | June. | July. | August. | September. | October. | November. | December. | Totals. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alcoholism | .... | .... | .... | .... | .... | 1 | .... | .... | .... | 1 | 1 | 1 | 4 |
| Anæmia | .... | .... | .... | .... | .... | 1 | .... | .... | .... | .... | .... | .... | 1 |
| Apoplexy | 4 | 1 | 6 | 3 | 5 | .... | 4 | 3 | 2 | 1 | 4 | 2 | 35 |
| Asthma | .... | .... | 1 | .... | .... | .... | 1 | .... | .... | .... | .... | .... | 2 |
| Atrophy and Debility | 2 | 1 | 2 | 1 | .... | 1 | 1 | 1 | 4 | 1 | .... | 4 | 18 |
| Brain Disease | .... | .... | 2 | 1 | 2 | 1 | 1 | .... | 2 | 1 | 1 | .... | 11 |
| Bright's Disease | 2 | .... | .... | 4 | 2 | .... | 3 | 1 | .... | 1 | 2 | 3 | 18 |
| Bronchitis | 10 | 2 | 4 | 7 | 5 | 2 | 1 | .... | .... | 3 | 7 | 7 | 48 |
| Burns and Scalds | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1 | .... | 1 |
| Cancer | 2 | 2 | 5 | 6 | 6 | 3 | 1 | 6 | 3 | 5 | 2 | .... | 41 |
| Carbuncle | .... | .... | .... | .... | 1 | .... | .... | .... | .... | .... | .... | .... | 1 |
| Casualties | 3 | .... | .... | 3 | .... | .... | 1 | .... | 2 | .... | .... | .... | 9 |
| Cellulitis | .... | .... | .... | 1 | 1 | .... | .... | .... | .... | .... | .... | .... | 2 |
| Cerebro-Spinal Meningitis | .... | .... | .... | .... | .... | .. | .... | 1 | 1 | 1 | .... | .... | 3 |
| Childbirth | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 2 | .... | 2 |
| Cholera Infantum | .... | .... | .... | .... | .... | 5 | 56 | 29 | 10 | 7 | .... | .... | 107 |
| Cholera Morbus | .... | .... | .... | .... | .... | .... | 3 | .... | .... | .... | .... | .... | 3 |
| Convulsions | 2 | 3 | 1 | 1 | 1 | 2 | 9 | 6 | 1 | 3 | 5 | 4 | 38 |
| Croup | 1 | 2 | .... | 1 | .... | 1 | .... | 1 | .... | 1 | 1 | 1 | 9 |
| Cyanosis | 1 | 1 | .... | .... | .... | .... | 1 | 1 | .... | .... | .... | 1 | 5 |
| Cystitis | .... | .... | .... | 1 | .... | .... | .... | 2 | .... | .... | .... | .... | 3 |
| Diabetis | .... | 1 | .... | .... | .... | .... | 1 | .... | .... | .... | .... | 1 | 3 |
| Diarrhœa | 3 | .... | 1 | .... | 1 | .... | 5 | 2 | 2 | 1 | 1 | .... | 16 |
| Diphtheria | 2 | 1 | 1 | 2 | 2 | 1 | 3 | 3 | 2 | 6 | 11 | 5 | 39 |
| Dropsy | .... | .... | .... | .... | .... | 2 | 1 | .... | 1 | 1 | .... | .... | 5 |
| Drowning | .... | .... | .... | .... | .... | 2 | 1 | 1 | ... | .... | .... | 1 | 5 |
| Dysentery | .... | .... | .... | .... | .... | .... | 2 | 4 | 1 | .... | .... | .... | 7 |
| Enteritis | .... | .... | 1 | .... | 1 | .... | ... | .... | ... | .... | .... | .... | 2 |

## Causes of Death in 1887—*Continued.*

| Diseases. | January. | February. | March. | April. | May. | June. | July. | August. | September. | October. | November. | December | Totals. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Epilepsy | .... | .... | 1 | .... | .... | .... | .... | .... | .... | 1 | 1 | .... | 3 |
| Erysipelas | 2 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1 | 3 |
| Fever, Malarial | .... | .... | .... | .... | .... | .... | .... | 1 | .... | .... | .... | .... | 1 |
| Fever, Scarlet | .... | .... | .... | .... | 2 | .... | .... | .... | 4 | 4 | 6 | 2 | 18 |
| Fever, Typhoid | .... | 1 | .... | .... | .... | .... | .... | 3 | 3 | 6 | 4 | 3 | 20 |
| Gangrene of Feet | .... | .... | .... | .... | .... | 1 | .... | .... | .... | .... | .... | .... | 1 |
| Gastritis | ... | .... | .... | .... | .... | .... | .... | 1 | .... | .... | .... | .... | 1 |
| Heart Disease | 6 | 5 | 7 | 6 | 9 | 3 | 3 | 7 | 5 | 8 | 5 | 11 | 75 |
| Hernia | .... | .... | .... | 1 | .... | .... | .... | .... | .... | 1 | .... | .... | 2 |
| Herpes Zoster | . .. | .... | .... | .... | .... | .... | .... | .... | 1 | .... | .... | .... | 1 |
| Hydrocephalus | .... | 3 | .... | .... | 2 | .... | .... | .... | .... | .... | .... | .... | 5 |
| Insanity | .... | .... | .... | .... | 1 | .... | .... | ... | .... | .... | .... | .... | 1 |
| Kidney Diseas | .... | . .. | .... | .... | .... | .... | .... | 1 | .. . | .... | .... | .... | 1 |
| Laryngitis | .... | 1 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1 |
| Liver Diseases | .... | 1 | .... | 1 | .... | .... | 3 | .... | 1 | 1 | ... | 1 | 8 |
| Lung Diseases | 1 | .... | 2 | 2 | 2 | 1 | 4 | 1 | 1 | 3 | 1 | 1 | 19 |
| Measles | .... | 1 | 1 | 2 | 9 | 8 | 2 | .... | .... | .... | .... | .... | 23 |
| Meningitis | 8 | 2 | 7 | 9 | 5 | 3 | 5 | 7 | 10 | 1 | 2 | 6 | 65 |
| Metria | .... | .... | .... | 1 | .... | .... | ... | .... | 1 | 1 | .... | 2 | 5 |
| Nephritis | 2 | .... | .... | 1 | .... | .... | .... | .... | .... | 1 | 2 | 2 | 8 |
| Occlusion of Intestines | 1 | .... | .... | ... | .... | .... | .... | .... | 1 | 1 | .... | 1 | 4 |
| Other Malformations | .... | ... | .... | .... | .... | .... | .... | 1 | .... | .... | .... | .... | 1 |
| Old Age | 3 | 2 | 1 | 4 | 4 | 3 | 4 | 8 | 3 | .... | 5 | 3 | 40 |
| Paralysis | 3 | 2 | 6 | 1 | .... | 2 | 1 | 4 | 1 | 4 | 2 | 5 | 31 |
| Perforation of Intestines | .... | ... | .... | .... | .... | .... | 1 | .... | .... | .... | .... | .... | 1 |
| Peritonitis | 3 | .... | 1 | .... | 2 | 2 | .... | 3 | .... | .... | 1 | 2 | 14 |
| Phlebitis | 1 | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1 | 1 | 3 |
| Phthisis | 13 | 12 | 16 | 23 | 14 | 20 | 13 | 9 | 13 | 11 | 16 | 15 | 175 |
| Pleurisy | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1 | .... | 1 | 2 |
| Pneumonia | 6 | 9 | 14 | 23 | 13 | 9 | 5 | 2 | 7 | 3 | 8 | 5 | 104 |
| Premature Birth and Infantile Debility | 4 | 3 | 4 | 8 | 9 | 3 | 10 | 19 | 8 | 12 | 5 | 6 | 91 |
| Psoas Absces | 1 | .... | .... | ... | .... | .... | ... | .... | .... | .... | .... | .... | 1 |
| Rheumatism | .... | ... | .... | 1 | .... | .... | .... | .... | .... | .... | ... | 1 | 2 |
| Scrofula | .... | 1 | 1 | .... | .... | .... | .... | .... | .... | .... | .... | 1 | 3 |

## Causes of Death in 1887—*Continued.*

| Diseases. | January. | February. | March. | April. | May. | June. | July. | August. | September. | October. | November. | December. | Totals. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Septicæmia | 2 | .... | 2 | .... | 2 | .... | .... | .... | .... | .... | 2 | 1 | 9 |
| Small Pox | .... | .... | .... | .... | 1 | .... | .... | .... | .... | .... | .... | .... | 1 |
| Spina Bifida | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1 | .... | 1 |
| Spinal disease | .... | .... | .... | .... | .... | .... | 1 | .... | .... | .... | .... | .... | 1 |
| Stillborn | 7 | 8 | 7 | 12 | 7 | 7 | 9 | 6 | 7 | 4 | 7 | 10 | 91 |
| Stomach disease | .... | .... | .... | .... | .... | 1 | 1 | .... | .... | .... | .... | .... | 2 |
| Suicide | 1 | .... | .... | 1 | .... | 1 | 1 | .... | 1 | .... | 1 | 2 | 8 |
| Syphillis | .... | .... | .... | .... | 1 | .... | .... | 3 | .... | .... | .... | 1 | 5 |
| Teething | .... | .... | .... | .... | .... | .... | .... | .... | 3 | .... | .... | .... | 3 |
| Tumor | .... | .... | .... | .... | .... | .... | 1 | .... | .... | .... | .... | .... | 1 |
| Ulceration of Intestines | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1 | .... | .... | 1 |
| Ulcerative Endocarditis | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1 | 1 |
| Ulcer of Œsophagus | .... | .... | 1 | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1 |
| Umbilical Hemorrhage | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1 | .... | 1 |
| Unknown | 2 | .... | 2 | 4 | 2 | 2 | 3 | 1 | 1 | 4 | 3 | 2 | 26 |
| Whooping Cough | .... | .... | .... | .... | .... | .... | 1 | .... | 1 | .... | .... | .... | 2 |
| Totals | 98 | 65 | 97 | 131 | 112 | 88 | 163 | 138 | 103 | 101 | 112 | 117 | 1325 |

## Cases of Scarlet Fever, Diphtheria and Typhoid Fever reported to the Board of Health for the Year 1887.

| Name of Disease. | January. | February. | March. | April. | May. | June. | July. | August. | September. | October. | November. | December. | Totals. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scarlet Fever | 6 | 3 | 13 | 9 | 19 | 6 | 2 | 7 | 12 | 22 | 56 | 54 | 209 |
| Diphtheria | 15 | 7 | 4 | 11 | 13 | 15 | 14 | 16 | 9 | 32 | 33 | 33 | 202 |
| Typhoid Fever | 18 | 10 | 9 | 3 | 3 | 3 | 3 | 27 | 14 | 19 | 11 | 5 | 125 |
| Small Pox | .... | .... | .... | .... | 1 | .... | .... | .... | .... | .... | .... | .... | 1 |
| Typhus Fever | .... | .... | .... | .... | 1 | .... | .... | .... | .... | .... | .... | .... | 1 |
| Totals | 39 | 20 | 26 | 23 | 37 | 24 | 19 | 50 | 35 | 73 | 100 | 92 | 538 |

# REPORT

OF THE

# SUPERINTENDENT OF LAMPS.

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CAMBRIDGE, NOV. 30, 1887.

*To the Honorable the City Council:* —

THE undersigned respectfully submits the annual report of the Lamp Department.

| | | |
|---|---|---|
| Amount appropriated for lighting the streets | | $40,823 58 |
| Amount expended: — | | |
| For Gas | $15,150 66 | |
| Electric lighting | 12,526 55 | |
| Pay-roll | 8,052 36 | |
| Oil, matches, etc. | 383 40 | |
| Piping and fitting posts | 238 35 | |
| Repairing posts and lanterns | 216 09 | |
| Granite curbing for electric poles | 144 00 | |
| Posts and lanterns | 93 00 | |
| Glass | 53 94 | |
| Cans, ladders, etc. | 10 58 | |
| Testing burners | 75 | |
| Painting lanterns | 12 00 | |
| Alcohol | 81 98 | |
| Fitting up store-rooms | 30 30 | |
| Carriage-hire | 134 00 | |
| Sundries | 40 15 | |
| Superintendent | 665 43 | |
| | | $37,833 54 |
| Amount unexpended | | 2,990 04 |
| | | $40,823 58 |

The amount of $1,500.00 transferred from this department to that of the Street Department, if added to the $2,990.04 would leave a total of $4,490.04 unexpended.

While the expenditures of the present year exceed those of the year past by $6,251.28, it must be borne in mind that by

the introduction of electric lighting the additional expense to this department has been $8,200.00.

Amount received for broken posts, lanterns and glass, $73.58, which deducted from amount of expenditures would leave the actual cost of the department $37,759.96.

The cost per lamp for all expenses of the department, was for the gas lamps $29.42 yearly, and for the oil lamps, $14.06½.

The total number of street lamps now lighted by the city is 930 gas and oil and 77 electric lamps, distributed as follows:

| | Gas. | Kerosene. | |
|---|---|---|---|
| District 1 | 122 | 31 | |
| " 2 | 105 | 42 | |
| " 3 | 143 | 21 | |
| " 4 | 137 | 22 | |
| " 5 | 132 | 27 | |
| " 6 | 96 | 52 | |
| | 735 | 195 | 930 |

ELECTRIC LAMPS.

| | | |
|---|---|---|
| 26 | lamps | from West Boston bridge to Harvard Square |
| 1 | " | in Brattle Square |
| 1 | " | on Church Street |
| 2 | " | " Garden Street. |
| 1 | " | " Waterhouse Street. |
| 20 | " | " North Avenue. |
| 26 | " | " Cambridge Street. |

The number of lamps discontinued by the introduction of electric lights has been 216. Twelve new lamps have been located, 8 gas and 4 kerosene; of this number the city has furnished 8 and the petitioners 4. Ten discontinued lamps have been replaced.

The lamps have been burned 339 nights, and the aggregate number of hours burned was 2,525,113½, and consuming 10,100,454 feet of gas.

The longest number of hours of burning in one night was 13¼ and the shortest 1¼, averaging 9⅔ hours.

The cost of each lamp covering all expenses was for gas lamps .08⅔ cents per night, kerosene .04⅙ cents.

Last February an investigation was made as to the condition of the posts and lanterns, at which time it was found that fully one-third of the lanterns in use needed repairing. Since that time

200 lanterns have been repaired and about 50 of the number have been painted. It was also found that a very large number of the cages were in poor condition and unsafe for us by reason of the rods and bolts being broken, there being quite a number of cases where the supply pipe alone held the lantern in position. More than two hundred of these have been repaired, yet there remain many which now need to be repaired.

It has been the custom in previous years to pay the lighters for their kerosene lamps only on the nights on which they were lighted. This the lighters have always felt to be an injustice, as during the period at or near the full of the moon their pay was very small, in some instances amounting to only eight dollars a week. They therefore petitioned the Committee on Lamps to be allowed to receive pay for each and every night, and the Committee, in view of the fact that the men had to prepare the lamps, and also were required to report for duty at such times, felt that their complaint was a just one, and therefore voted to pay them as prayed for. This, without doubt, has had a good effect, as the men generally have taken a deeper interest in their work, and the result has been a better service.

At the introduction of the electric lamps many gas lamps were discontinued, and it was found that the services of two men could be dispensed with, and two, the youngest in the service, both of whom were unmarried, were therefore discharged. Another has been discharged for neglect of duty, and one has died.

It will be noticed that the expenditure for carriage hire is much larger than in previous years. This is accounted for by reason of the large amount of repairing done, and also by the fact that the Superintendent is required, as never before, to go over the several routes at least once a week, and as there are about sixty miles of lighted streets in the city, this takes two days in every week.

At the beginning of the year a large accumulation of supplies were on hand, of which a considerable portion were old and unserviceable. Under direction of the Committee on Lamps so much of the stock on hand as could be utilized has been expended, and only such supplies as were actually required for the current service of the department have been purchased during the year. The serviceable stock on hand is now nearly exhausted, and

consequently the amount required to be expended for the purchase of supplies during the coming year will be much larger than the amount expended for that purpose during the past year. It is recommended that all the useless material on hand be disposed of.

## ELECTRIC LIGHTS.

Pursuant to instructions of the city council the Committee on Lamps, on the fifteenth of December, 1886, concluded a contract with the Cambridge Electric Light Company (which had previously obtained permission to locate its poles in certain streets of the city) for the lighting of Main Street, Cambridge Street, and North Avenue, and the squares adjacent thereto, with electric lamps of not less than two thousand candle-power each, to be burned every night from twilight to daylight. Under the provisions of this contract seventy-two lamps of the Weston system were put in operation prior to February 22, 1887, and five lamps of the same system have since been added to the circuits. The service of these lamps has been far from satisfactory, and frequent complaints have been made of the inefficiency and unreliability of the lights. The parties who have controlled the affairs of the Electric Light Company at different periods during the year, have repeatedly assured the Committee on Lamps of their ability and determination to give the city a satisfactory service; but their efforts in this direction have been as yet without avail. It is now understood that the company proposes to replace nearly its entire plant, and to introduce more effective and reliable machinery and apparatus, from which it is hoped that much better results will be obtained in the near future. Should the contemplated changes, however, prove to be ineffective, it will probably become necessary for the City Council to consider some other system of electric lighting, or to return to the method of lighting the streets with gas, for which requests have already been made by citizens interested in the matter.

Respectfully submitted,

B. OTIS DANFORTH,
*Superintendent of Lamps.*

# REPORT

OF THE

# SEALER OF WEIGHTS AND MEASURES.

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CAMBRIDGE, NOV. 30, 1887.

*To the Honorable the City Council:—*

THE undersigned respectfully submits the report of the department of Weights and Measures.

| | 1887. | | | INCREASE OVER 1886. | | |
|---|---|---|---|---|---|---|
| | Sealed. | Adjust'd. | Condemned. | Sealed. | Adjust'd. | Condemned. |
| Scales, . . . . . | 1156 | 158 | 6 | 255 | 71 | 6 |
| Weights, . . . . . | 4068 | 677 | 24 | 717 | 630 | 22 |
| Dry Measures, . . . | 106 | 28 | 2 | 57 | 23 | 2 |
| Liquid Measures, . . | 203 | 17 | 4 | 123 | 16 | 4 |
| Yard Sticks, . . . . | 4 | 0 | 0 | 0 | 0 | 0 |
| Totals, . . . . . | 5537 | 880 | 36 | 1152 | 740 | 34 |

All of this work has been performed by visiting the stores, manufactories, etc., with the exception of five instances, when the parties came to the office.

I would respectfully call your attention to the condition of the cabinet in which the weights and measures belonging to the State are kept. This cabinet is one of the first ever built for this purpose and is all out of shape, the shelf on which the scales are placed having settled more than an inch. The doors do not fit closely, and it is impossible to keep out the dust and

dirt. By referring to the Statutes it will be seen that the State requires these articles to be kept at all times free from dust and in the best possible condition. Neglecting to provide a suitable place, or to keep them in proper order, renders the City liable to a fine of two hundred dollars.

Last May an effort was made to have the cabinet trued up, but, owing to the warped condition of the shelves and uprights, this was found to be impossible.

Respectfully submitted,

B. OTIS DANFORTH,
*Sealer of Weights and Measures.*

# REPORT

OF THE

# INSPECTOR OF MILK AND VINEGAR.

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*To the Honorable the Mayor and Board of Aldermen of the City of Cambridge:—*

GENTLEMEN: In compliance with the City Ordinance I submit my annual report for 1887.

The work has been conducted in the same manner as heretofore; that is, milk and butterine licenses have been issued to those persons applying for them, and samples of milk and vinegar have been collected for analysis.

The money collected from the sale of licenses has amounted to $143.00, which sum has been transferred to the City Treasurer, and there has been expended for the purchase of chemical supplies, samples of milk and vinegar, postage and stationery, $42.81.

Pint samples of milk and vinegar are bought from the dealers all over the city, submitted to analysis, and those persons found selling an inferior article are warned that they are liable to prosecution. If no improvement in the quality of the goods is effected by this means, legal proceedings are commenced. No dealer is prosecuted without having been warned one or more times. The method of analysis is the same as described in my former reports, and great care is used in taking samples, to get one of a fair quality, neither too good nor too poor.

The number of samples of milk collected and analyzed during the year amounts to 1,222, of which 960 samples proved to be of good quality, and 262 were found to be below the standard of pure average milk. The number of persons prosecuted for selling poor milk is 10, each one of whom was convicted.

The number of samples of vinegar collected and analyzed

amounts to 94, of which samples 78 were found to conform to the legal requirements of cider vinegar, while 16 failed to so conform.

There have been two changes made in the management of the office during the year, both in my opinion greatly increasing its usefulness. The first change was an order by the City Government allowing the publication of the names of all persons found to be selling milk of an inferior quality. Since this order went into effect there have been published each month a list of the names of all such persons, so that all dealers warned or prosecuted have had their names published as well, thus making more widely known than would otherwise be the case, the fact that they are selling adulterated milk.

The other change is an order allowing the inspector to employ an assistant to collect samples. This makes possible the collection and analysis of at least three times as many samples as before, and will of course mean a corresponding increase in the efficiency of the office.

As stated in my last report, the ordinary adulterations of milk consist of skimming, the addition of water, or both, with generally the addition of a little coloring matter to make the milk appear of good quality. The addition of boracic acid or some other preservative, to prevent souring, is also becoming quite common.

These adulterations, while of not much consequence as regards health, for adults with good digestive powers, are of serious consequence in the case of invalids and young children, either because the substances added derange their digestion, or from the loss of nourishment. Considered as a fraud on the consumer, a few figures will make evident the amount lost in the course of a year. Suppose a family to take two quarts of milk a day at seven cents a quart, and that this milk is watered ten per cent. A simple calculation will show that the loss in a year is $5.11. Suppose also that from each eight-quart can a quarter of a pint of cream is taken. This, at fifteen cents a pint for cream, will amount in a year to a loss of $3.39 on the two quarts. This added to the former loss makes $8.50 which this family have paid more than they should, the whole bill coming to $51.10.

Suppose the same milk adulterated with twenty per cent of

water, and that cream is taken off to the extent of one pint from an eight-quart can, then the loss amounts to $23.78 on the same bill.

Thus, a man who regularly adulterates his milk to the extent first mentioned, and sells say thirty cans a day, makes in a year $1,020 more than his regular, legitimate profit, while a man who adulterates to the extent last mentioned makes $2,853.

Good milk adulterated with ten per cent of water, and very slightly skimmed, like that first mentioned, could scarcely be detected without a chemical analysis; certainly the family taking it would never suspect anything wrong, and testing with the lactoscope and lactometer would give no certain results. Milk like the second example would be easily detected by these instruments, if properly used, but if nicely colored to imitate pure milk, might easily be sold without exciting suspicion.

When it is considered that milk is sometimes found adulterated with even thirty or thirty-five per cent of water, it is seen that the customers really loose a large amount of money, which loss falls principally on persons the least able to bear it.

Cases of such extreme adulteration are now rare in this city, as but few samples of milk are found containing over ten per cent more water than normal, though occasionally in some out-of-the-way place a sample is found with twenty or even thirty per cent of water added.

Milk is, however, only one of the many articles of food which are adulterated. Tea, coffee, spices, molasses, in fact every article of food in which a profitable adulteration is possible, is so treated, and most people would probably be astonished to learn that this has gone so far that the manufacture of food adulterants has become a regularly established business, the products of which are sold to both wholesale and retail dealers all over the country.

Respectfully submitted,

FRANK A. DUNBAR, M. D.

# REPORT

OF THE

# SCHOOL COMMITTEE FOR 1887.

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PREPARED BY THE SUPERINTENDENT OF SCHOOLS.

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IN SCHOOL COMMITTEE, Dec. 15, 1887.

*Ordered*, That the Superintendent prepare the annual report and present it to this Board for approval.

W. W. WELLINGTON,
*Secretary.*

IN compliance with the above order the Superintendent herewith submits his thirteenth annual report, as the report of the School Committee for the year ending Dec. 31, 1887: —

## SUMMARY OF STATISTICS.

### I. — POPULATION.

| | |
|---|---|
| Population of Cambridge by the State census for 1885 . . . . . | 59,660 |
| Number of children in the city between five and fifteen years of age, May 1, 1887, as reported by the Truant-Officers . . . . . | 11,216 |

### II. — SCHOOLS.

1 Latin School, with eight rooms.
1 English High School, with twelve rooms.
8 Grammar Schools, with one hundred and six rooms.
23 Primary Schools, with one hundred rooms.
2 Evening Drawing Schools, with two rooms.
2 Evening Schools, with two rooms.

| | |
|---|---|
| Whole number of Day Schools . . . . . | 33 |
| Whole number of separate rooms . . . . . | 226 |

### III. — SCHOOL HOUSES.

| | |
|---|---|
| For the Latin School . . . . . | 1 |
| For the English High School . . . . . | 1 |
| For the Grammar Schools . . . . . | 8 |
| For both Grammar and Primary Schools . . . . . | 5 |
| For the Primary Schools . . . . . | 19 |

## IV. — Teachers.

| | |
|---|---|
| Number of teachers in Latin School | 9 |
| Male teachers, 3; female teachers, 6. | |
| Number of teachers in English High School | 12 |
| Male teachers, 4; female teachers, 8. | |
| Number of teachers in Grammar Schools | 113 |
| Male teachers, 11; female teachers, 102. | |
| Number of teachers in Primary Schools | 100 |
| Number of teachers in Evening Drawing Schools, 1885–86 | 7 |
| Average number of teachers in Evening Schools, 1885–86 | 15 |
| Whole number of teachers * in Day Schools, including the teacher of music, the teacher of drawing, and the secretary and librarian of the High Schools | 237 |
| Number of teachers who have attended Normal Schools | 152 |
| Number of teachers who have graduated from Normal Schools | 131 |

## V. — Pupils.

### Attendance at all the Day Schools 1883 to 1887.

| Year. | Number of Pupils Registered. | Average Number Belonging. | Average Daily Attendance. | Per cent of Attendance. |
|---|---|---|---|---|
| 1883 | 9,691 | 8,194 | 7,523 | 91.8 |
| 1884 | 9,982 | 8,414 | 7,763 | 92.2 |
| 1885 | 10,213 | 8,650 | 7,915 | 91.5 |
| 1886 | 11,012 | 9,246 | 8,530 | 92.2 |
| 1887 | 11,157 | 9,428 | 8,672 | 92.0 |

### Attendance at the High School, 1883 to 1887.

L. stands for Latin School, E. for English High School.

| Year. | Number of Pupils Registered. | Average Number Belonging. | Average Daily Attendance. | Per cent of Attendance. |
|---|---|---|---|---|
| 1883 | 438 | 396 | 375 | 94.6 |
| 1884 | 452 | 398 | 377 | 94.7 |
| 1885 | 499 | 462 | 434 | 94.0 |
| 1886 | 561 | 490 | 467 | 95.3 |
| 1887 | L. 196<br>E. 351 } 547 | L. 181<br>E. 318 } 499 | L. 175<br>E. 302 } 477 | L. 96.5<br>E. 95.1 } 95.6 |

* Temporary assistants and members of the training class are counted as seven teachers; the sum of their salaries being equal to the amount paid that number of regular teachers.

## Attendance at the Grammar Schools, 1883 to 1887.

| Year. | Number of Pupils Registered. | Average Number Belonging. | Average Daily Attendance. | Per cent of Attendanee. |
|---|---|---|---|---|
| 1883 | 4,186 | 3,728 | 3,462 | 92.8 |
| 1884 | 4,363 | 3,848 | 3,593 | 93.3 |
| 1885 | 4,562 | 4,119 | 3,816 | 92.6 |
| 1886 | 5,121 | 4,440 | 4,152 | 93.5 |
| 1887 | 5,334 | 4,628 | 4,317 | 93.3 |

## Attendance at the Primary Schools, 1883 to 1887.

| Year. | Number of Pupils Registered. | Average Number Belonging. | Average Daily Attendanee. | Per cent of Attendance. |
|---|---|---|---|---|
| 1883 | 5,067 | 4,070 | 3,686 | 90.5 |
| 1884 | 5,167 | 4,168 | 3,798 | 90.9 |
| 1885 | 5,152 | 4,069 | 3,664 | 90.0 |
| 1886 | 5,330 | 4,316 | 3,912 | 90.6 |
| 1887 | 5,276 | 4,301 | 3,877 | 90.1 |

## Number of Pupils Graduated from, and Admitted to, the High School and the Grammar Schools, 1883 to 1887.

L. stands for Latin School, E. for English High School.

| Year. | Graduated from High School. | Admitted to High School. | Graduated from Grammar Schools. | Admitted to Grammar Schools. |
|---|---|---|---|---|
| 1883 | 70 | 172 | 251 | 958 |
| 1884 | 75 | 206 | 314 | 1,042 |
| 1885 | 72 | 239 | 303 | 1,103 |
| 1886 | 61 | 198 | 273 | 1,165 |
| 1887 | L. 12<br>E. 49 } 61 | L. 106<br>E. 145 } 251 | 319 | 1,123 |

## Number of Pupils belonging to the Evening Schools, with the Average Attendance, 1886-87.

Number of Pupils . . . 311 | Average Attendance . . 124

## Number of Pupils belonging to the Evening Drawing Schools, with the Average Attendance, 1883 to 1887.

| 1883. | 1884. | 1885. | 1886. | 1887. |
|---|---|---|---|---|
| 159 | 212 | 223 | 223 | 255 |
| 89 | 104 | 110 | 106 | 106 |

## Number of Pupils over Fifteen Years of Age belonging to the Day Schools on the First of May, 1883 to 1887.

| 1883. | 1884. | 1885. | 1886. | 1887. |
|---|---|---|---|---|
| 586 | 668 | 695 | 739 | 836 |

## Number of Pupils in the Private Schools in Cambridge, including the Parochial School, 1883 to 1887.

| 1883. | 1884. | 1885. | 1886. | 1887. |
|---|---|---|---|---|
| 1,844 | 1,869 | 1,865 | 1,858 | 1,651 |

## Table showing the Number in each Class in the Latin School, December, 1887.

| Class. | Boys. | Girls. | Total. | Per Cent. |
|---|---|---|---|---|
| First . . . . . | 15 | 10 | 25 | .105 |
| Second . . . . . | 22 | 19 | 41 | .172 |
| Third . . . . . | 22 | 17 | 39 | .164 |
| Fourth . . . . . | 27 | 22 | 49 | .206 |
| Fifth . . . . . | 48 | 36 | 84 | .353 |
| Total . . . . . | 134 | 104 | 238 | |

**Table showing the Number in each Class in the English High School, December, 1887.**

| Class. | ys. | Girls. | Total. | Per cent. |
|---|---|---|---|---|
| First . . . . . | 4 | 44 | 48 | .150 |
| Second . . . . . | 24 | 40 | 64 | .200 |
| Third . . . . . | 27 | 57 | 84 | .262 |
| Fourth . . . . . | 56 | 68 | 124 | .388 |
| Total . . . . . | 111 | 209 | 320 | |

**Table showing the Number in each Class in the Grammar Schools, December, 1887.**

| Class. | Boys. | Girls. | Total. | Per cent. |
|---|---|---|---|---|
| First . . . . . | 175 | 212 | 387 | .076 |
| Second . . . . . | 269 | 361 | 630 | .125 |
| Third . . . . . | 362 | 455 | 817 | .162 |
| Fourth . . . . . | 440 | 472 | 912 | .181 |
| Fifth . . . . . | 518 | 608 | 1,126 | .223 |
| Sixth . . . . . | 598 | 579 | 1,177 | .233 |
| Total . . . . . | 2,362 | 2,687 | 5,049 | |

**Table showing the Number of Pupils in each Class in the Primary Schools, December, 1887.**

| Class. | Boys. | Girls. | Total. | Per cent. |
|---|---|---|---|---|
| First . . . . . | 616 | 644 | 1,260 | .269 |
| Second . . . . . | 710 | 640 | 1,350 | .288 |
| Third . . . . . | 1,065 | 1,007 | 2,072 | .443 |
| Total . . . . . | 2,391 | 2,291 | 4,682 | |

## Summary of the School Census, as taken by the Truant Officers, May, 1887.

[The Statutes make it the duty of the School Committee annually to ascertain the names and ages of all persons belonging to their respective towns and cities on the first day of May, between the ages of five and fifteen years.]

| | |
|---|---|
| Number of children in the city five years old or more, but less than fifteen | 11,216 |
| Number in Public Schools five years old or more, but less than fifteen | 9,089 |
| Number in Private Schools five years old or more, but less than fifteen | 1,229 |
| Number not attending school five years old or more, but less than eight | 481 |
| Number not attending school eight years old or more, but less than fourteen | 224 |
| Number not attending school fourteen years old or more, but less than fifteen | 193 |
| Whole number not attending school five years old or more, but less than fifteen | 898 |
| Number in the city five years old or more, but less than six | 886 |
| Number in the city eight years old or more, but less than fourteen | 7,088 |

## VI.—Finances.

[For the financial year ending Dec. 1, 1887.]

| | |
|---|---|
| Cost of instruction in Day Schools | $172,135 06 |
| Free text-books and supplies | 10,992 00 |
| Incidental expenses for Day Schools | 646 55 |
| Cost of Evening Drawing Schools | 1,074 64 |
| Cost of Evening Schools | 1,068 84 |
| Cost of Industrial School | 350 31 |
| Care and repairs of School Houses | 38,905 58 |
| Amount expended on Webster School House | 1,430 64 |
| Amount expended for Putnam School House | 9,304 74 |
| Total expenditures for all school purposes | $235,908 36 |
| Deducting receipts from the Hopkins Fund ($686.63) and for tuition of non-resident pupils ($182.50), actual cost of the schools to the city | $235,039 23 |
| Assessed value of real and personal estate, May, 1887 | $59,652,810 00 |
| Ratio of expenses for school purposes to the valuation of 1887 | .0039 |

## Cost of Instruction in the Day Schools, 1876 to 1887.

[Salaries of teachers, superintendent, agent, and truant-officers.]

| Year. | Whole Cost. | Average Number of Pupils. | Cost per Pupil. |
|---|---|---|---|
| 1876 | $164,818 00 | 7,066 | $23 32 |
| 1877 | 151,946 65 | 7,139 | 21 28 |
| 1878 | 136,491 20 | 7,028 | 19 42 |
| 1879 | 132,570 49 | 6,957 | 19 05 |
| 1880 | 130,371 75 | 7,175 | 18 17 |
| 1881 | 132,501 10 | 7,434 | 17 82 |
| 1882 | 137,328 55 | 7,898 | 17 38 |
| 1883 | 144,457 60 | 8,194 | 17 63 |
| 1884 | 152,290 62 | 8,414 | 18 09 |
| 1885 | 158,640 13 | 8,650 | 18 33 |
| 1886 | 165,277 42 | 9,218 | 17 92 |
| 1887 | 172,135 06 | 9,429 | 18 25 |

## Cost of the Day Schools, 1875 to 1887.

[The expenditures for new school houses and new furniture are not included.]

| Year. | Whole Cost. | Average Number of Pupils. | Cost per Pupil. |
|---|---|---|---|
| 1875 | $212,960 72 | 7,167 | $29 71 |
| 1876 | 200,894 09 | 7,066 | 28 43 |
| 1877 | 180,974 36 | 7,139 | 25 35 |
| 1878 | 162,437 77 | 7,028 | 23 11 |
| 1879 | 158,196 21 | 6,957 | 22 73 |
| 1880 | 153,967 56 | 7,175 | 21 45 |
| 1881 | 158,282 84 | 7,434 | 21 29 |
| 1882 | 166,230 52 | 7,898 | 21 04 |
| 1883 | 177,149 93 | 8,194 | 21 62 |
| 1884 | 203,234 56 | 8,414 | 24 15 |
| 1885 | 206,806 09 | 8,650 | 23 90 |
| 1886 | 207,536 46 | 9,218 | 22 51 |
| 1887 | 222,679 19 | 9,429 | 23 61 |

**Statistics taken from the Fifty-first Annual Report of the Secretary of the State Board of Education.**

| | |
|---|---|
| Number of cities and towns: cities, 23; towns, 326 | 349 |
| Number of public schools | 6,836 |
| Number of pupils of all ages in the public schools during the year | 353,361 |
| Number of persons over fifteen years of age attending the public schools | 28,968 |
| Per cent of attendance based upon the average membership | 90 |
| Number of persons employed as teachers in the public schools during the year: men, 1,033; women, 8,696; total | 9,729 |
| Number of teachers who have graduated from Normal Schools | 2,533 |
| Average number of months the public schools have been kept for the entire year | 8.9 |
| Number of High Schools | 229 |
| Number of teachers in High Schools | 701 |
| Number of pupils in High Schools | 22,406 |
| Amount expended upon the public schools, exclusive of the expense of school buildings | $5,857,321 00 |
| Cost of new school houses, permanent improvements, and ordinary repairs | $1,142,762 52 |
| Entire expenditure for public school purposes | $7,000,083 52 |

**Special Institutions.**

Massachusetts has taken the lead of the New England States in making the education of deaf children as free as that of hearing children. By a law passed in 1887, parents of deaf children are relieved from the necessity of declaring themselves unable to pay for the instruction of their children in the special institutions.

The State has provided for the care and instruction of deaf children at the American Asylum in Hartford, the Clarke Institution in Northampton, and the Horace Mann School in Boston; for the blind, in the Perkins Institution in South Boston, and for the feeble-minded, in the School for the Feeble-Minded in South Boston.

The following sums were expended for these purposes during the year: for the deaf, $29,745.69; for the blind, $30,000.00; for the feeble-minded $33,415.66.

*A Graduated Table in which the Cities in the State are Numerically Arranged According to the Percentage of their Taxable Property Appropriated to the Support of Public Schools for the year* 1886–87.

| For 1886–87, by the State Valuation of 1886. | Cities. | Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills. | For 1886–87, by the State Valuation of 1886. | Cities. | Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills. |
|---|---|---|---|---|---|
| 1 | Waltham | $.004–15 | 13 | Northampton | $.003–12 |
| 2 | Gloucester | .004–13 | 14 | Fall River | .003–09 |
| 3 | Haverhill | .003–79 | 15 | Cambridge | .003–02 |
| 4 | Holyoke | .003–49 | 16 | Brockton | .002–98 |
| 5 | Lynn | .003–46 | 17 | Lowell | .002–98 |
| 6 | Somerville | .003–46 | 18 | Lawrence | .002–84 |
| 7 | Worcester | .003–45 | 19 | Salem | .002–84 |
| 8 | Fitchburg | .003–36 | 20 | New Bedford | .002–73 |
| 9 | Chelsea | .003–21 | 21 | Newburyport | .002–67 |
| 10 | Malden | .003–16 | 22 | Springfield | .002–67 |
| 11 | Taunton | .003–13 | 23 | Boston | .001–96 |
| 12 | Newton | .003–12 | | | |

## Towns and Cities of Middlesex County.

| For 1886–87, by the State Valuation of 1886. | Towns and Cities. | Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills. | For 1886–87, by the State Valuation of 1886. | Towns and Cities. | Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills. |
|---|---|---|---|---|---|
| 1 | Marlborough | $.005–39 | 28 | Chelmsford | $.003–39 |
| 2 | Natick | .004–41 | 29 | Acton | .003–34 |
| 3 | Stoneham | .004–35 | 30 | Littleton | .003–33 |
| 4 | Wakefield | .004–22 | 31 | Watertown | .003–23 |
| 5 | Waltham | .004–15 | 32 | Framingham | .003–19 |
| 6 | Hudson | .004–13 | 33 | Malden | .003–16 |
| 7 | Westford | .004–12 | 34 | Newton | .003–12 |
| 8 | Winchester | .004–09 | 35 | Pepperell | .003–08 |
| 9 | North Reading | .003–91 | 36 | Maynard | .003–07 |
| 10 | Arlington | .003–86 | 37 | Cambridge | .003–02 |
| 11 | Holliston | .003–80 | 38 | Wilmington | .002–99 |
| 12 | Ashby | .003–79 | 39 | Lowell | .002–98 |
| 13 | Wayland | .003–78 | 40 | Everett | .002–84 |
| 14 | Woburn | .003–68 | 41 | Weston | .002–74 |
| 15 | Ayer | .003–67 | 42 | Boxborough | .002–70 |
| 16 | Concord | .003–66 | 43 | Burlington | .002–70 |
| 17 | Hopkinton | .003–65 | 44 | Sherborn | .002–65 |
| 18 | Ashland | .003–64 | 45 | Dracut | .002–58 |
| 19 | Townsend | .003–61 | 46 | Dunstable | .002–58 |
| 20 | Tyngsboro | .003–61 | 47 | Belmont | .002–56 |
| 21 | Lexington | .003–56 | 48 | Billerica | .002–36 |
| 22 | Melrose | .003–55 | 49 | Carlisle | .002–24 |
| 23 | Medford | .003–47 | 50 | Stow | .002–24 |
| 24 | Reading | .003–47 | 51 | Sudbury | .002–03 |
| 25 | Somerville | .003–46 | 52 | Groton | .001–97 |
| 26 | Bedford | .003–40 | 53 | Lincoln | .001–91 |
| 27 | Shirley | .003–40 | 54 | Tewksbury | .001–84 |

# TABULAR VIEW

OF THE

# PUBLIC SCHOOLS OF CAMBRIDGE.

JANUARY 1, 1888.

Prepared by the Secretary of the School Committee.

| Names of Schools. | Teachers. | Salaries. | No. of Scholars Jan. 1, 1888. |
|---|---|---|---|
| Latin School. | William F. Bradbury... | $3,000 | 238 |
| | Theodore P. Adams.... | 2,000 | |
| | Helen M. Albee..... | 950 | |
| | Charlotte C. Barrell.... | 875 | |
| | Marion Bradbury ..... | 800 | |
| | Margarette M. Leighton | 950 | |
| | Jennie S. Spring..... | 875 | |
| | William A. Stone..... | 950 | |
| | Mary C. Warren..... | 875 | |
| English High. | Frank A. Hill ..... | 3,000 | 320 |
| | Edwin L. Sargent..... | 2,000 | |
| | Emma F. Munroe..... | 1,150 | |
| | Clara A. Armes..... | 875 | |
| | Carrie Close..... | 800 | |
| | Otis B. Oakman..... | 800 | |
| | Louisa P. Parker..... | 950 | |
| | Elbert W. Rockwood... | 800 | |
| | Caroline A. Sawyer..... | 875 | |
| | Emma A. Scudder..... | 950 | |
| | Martha R. Smith..... | 800 | |
| | Maria E. Spare..... | 950 | |
| Allston. | Benjamin W. Roberts.. | 2,000 | 573 |
| | Mary I. Vinton..... | 700 | |
| | Sara A. Bailey..... | 620 | |
| | Mary Blair..... | 620 | |
| | Mary M. Brigham ..... | 620 | |
| | Hattie B. Johnson..... | 520 | |
| | Melissa M. McKinley.. | 620 | |
| | Celia F. McFarland.... | 620 | |
| | Evelyn B. Kenney..... | 570 | |
| | Emily R. Pitkin..... | 620 | |
| | Ida G. Smith..... | 620 | |
| | Carrie M. Williams.... | 620 | |
| | Elizabeth C. Woodman. | 620 | |
| Harvard. | James S. Barrell..... | 2,000 | 766 |
| | Frederick S. Cutter.... | 1,000 | |
| | Ada H. Wellington..... | 700 | |
| | Margaret B. Wellington | 700 | |
| | Susan F. Athearn..... | 620 | |
| | Emily F. Damon.. .... | 620 | |
| | Myra I. Ellis..... | 620 | |
| | Mary F. Emerson..... | 620 | |
| | Clara A. Emerton..... | 620 | |
| | Frances Fabyan..... | 620 | |
| | Estelle J. French..... | 620 | |

## Tabular View of the Public Schools—*Continued.*

| Names of Schools. | Teachers. | Salaries. | No. of Scholars Jan. 1, 1888. |
|---|---|---|---|
| Harvard. | Eliza S. Getchell..... | $ 620 | |
| | Cora E. Hosmer..... | 620 | |
| | Edith A. Sanford..... | 570 | |
| | Harriet A. Townsend.. | 620 | |
| | Hortense O. Young.... | 620 | |
| Putnam. | Thomas W. Davis..... | 2,000 | 560 |
| | Frederick W. Eveleth.. | 1,000 | |
| | Eliza M. Hussey..... | 700 | |
| | Annetta Bruce..... | 620 | |
| | Lydia B. Collier..... | 400 | |
| | Sarah A. Conlan..... | 400 | |
| | Anna M. Dormer..... | 520 | |
| | Sarah M. Grieves..... | 620 | |
| | Annie B. Josselyn..... | 620 | |
| | Louise A. Keeler..... | 520 | |
| | Augusta G. Mirick..... | 620 | |
| | Eliza S. Paddack..... | 620 | |
| | Mary M. Sullivan..... | 470 | |
| | Alice L. Watts..... | 620 | |
| Shepard. | Edward O. Grover..... | 2,000 | 580 |
| | Nellie A. Hutchins..... | 700 | |
| | Mary A. Bosworth..... | 620 | |
| | Harriet V. Dever ..... | 400 | |
| | Emma A. Falkner..... | 520 | |
| | Emily F. Fessenden.... | 620 | |
| | Harriet Foster..... | 570 | |
| | Ellen J. Hunt..... | 620 | |
| | A. Estelle Ingraham.... | 620 | |
| | Evelyn J. Locke..... | 620 | |
| | Julia H. Osgood ..... | 620 | |
| | Clara A. Peterson..... | 620 | |
| | Sarah A. Rand..... | 620 | |
| | Lizzie B. Shepherd ..... | 570 | |
| Thorndike. | Ruel H. Fletcher..... | 2,000 | 556 |
| | Lelia A. Mirick,..... | 700 | |
| | Emma F. Cogan..... | 400 | |
| | Grace W. Fletcher..... | 620 | |
| | Emma A. Hopkins..... | 620 | |
| | Abby A. K. Howard.... | 620 | |
| | ElizabethG. Hutchinson | 620 | |
| | Martha A. Martin.. ... | 620 | |
| | Mary E. Nason..... | 620 | |
| | Elizabeth P. Regal..... | 620 | |
| | Abby S. Taylor..... | 620 | |
| | Laura S. Westcott..... | 620 | |
| | Lydia A. Whitcher..... | 620 | |
| Washington. | John W. Freese..... | 2,000 | 629 |
| | Carrie M. Kingman.... | 700 | |
| | Eldora J. Clark..... | 620 | |
| | Lucy A. Downing..... | 620 | |
| | Mary L. Ells..... | 570 | |
| | Mary H. Hanks..... | 620 | |
| | Adeline M. Ireson..... | 620 | |
| | Adelaide A. Keith..... | 620 | |
| | Adelaide A. Keeler..... | 620 | |
| | Margaret J. Penney.... | 620 | |
| | Hattie Shepherd..... | 620 | |

**Tabular View of the Public Schools**—*Continued.*

| Names of Schools. | Teachers. | Salaries. | No. of Scholars Jan. 1, 1888. |
|---|---|---|---|
| Washington. | Mary E. Stiles..... | $ 620 | |
| | Abby M. Webb..... | 620 | |
| | Mary A. Wheeler..... | 620 | |
| Webster. | John D. Billings..... | 2,000 | 797 |
| | Charles H. Morse..... | 1,000 | |
| | Esther F. Hannum..... | 700 | |
| | Mary E. Towle ..... | 700 | |
| | Marion H. Burnham .... | 620 | |
| | Ella E. Buttrick..... | 620 | |
| | Florence B. Chandler... | 570 | |
| | Charlotte M. Chase .... | 620 | |
| | Susan I. Downs..... | 470 | |
| | Josie F. Lamprey..... | 620 | |
| | Anna S. Lamson ..... | 620 | |
| | Georgia E. Lancaster ... | 570 | |
| | Gertrude A. Long..... | 470 | |
| | Clara E. Matchett..... | 620 | |
| | Alice C. Phinney..... | 620 | |
| | Mary A. Townsend.... | 620 | |
| | Georgiana M. Tupper... | 570 | |
| Corlett. | Fannie P. Browning... | 630 | 77 |
| | Sarah E. Clark..... | 620 | |
| Agassiz. {Grammar. {Primary. | Charlotte A. Ewell.... | 700 | {135 {155 |
| | Maria L. Baldwin..... | 620 | |
| | Mary G. Carpenter..... | 620 | |
| | Emma A. Child..... | 620 | |
| | Frances W. Dawson.... | 620 | |
| | Dora B. Dean..... | 620 | |
| | Rosina C. Karcher..... | 620 | |
| Boardman. | Mary A. Lewis..... | 655 | 334 |
| | Christine R. Denyven.. | 400 | |
| | Mary Alice Gregg..... | 400 | |
| | Nellie E. Hastings..... | 470 | |
| | Elizabeth J. Karcher.... | 620 | |
| | C. Florence Smith..... | 400 | |
| | Sarah E. Stewart..... | 620 | |
| Bridge. | Elizabeth E. Dallinger. | 630 | 88 |
| | Emily C. Dallinger. ... | 620 | |
| Cushing. | Isadore I. Foster..... | 630 | 75 |
| | Ida B. Holt..... | 520 | |
| Dana. | Maria F. Williams..... | 640 | 168 |
| | Emily J. Allen ..... | 400 | |
| | Cordelia J. French..... | 620 | |
| | Abby A. Lewis..... | 620 | |
| Dunster. | Susan E. Wyeth..... | 630 | 94 |
| | Nellie M. Colby..... | 520 | |
| Felton. | Sarah J. Gunnison..... | 640 | 156 |
| | Fanny C. Hartwell..... | 620 | |
| | Minnie F. Munroe..... | 620 | |
| Gannett. | Sarah J. A. Davis..... | 640 | 181 |
| | Anna M. Jones..... | 620 | |
| | Mary A. Rady..... | 620 | |
| | Carrie H. Smith..... | 620 | |
| Gore. | Frances E. Pendexter.. | 670 | 487 |
| | Addie M. Bettinson.... | 620 | |
| | Anna E. Callahan..... | 620 | |

**Tabular View of the Public Schools**—*Continued.*

| Names of Schools. | Teachers. | Salaries. | No. of Scholars Jan. 1, 1888. |
|---|---|---|---|
| Gore. | Sarah D. Graham..... | $620 | |
| | Elizabeth B. Gahm..... | 620 | |
| | Lizzie J. Hawkins..... | 620 | |
| | Mary E. Mulloney..... | 620 | |
| | S. Louise Regal..... | 620 | |
| | Emma J. Ross..... | 470 | |
| | Louise A. Stickney..... | 620 | |
| Holmes. | Marianne M. Webb .... | 640 | 186 |
| | Mary L. Bullard..... | 620 | |
| | Ellen M. Cyr..... | 620 | |
| | Isabel Foster..... | 620 | |
| Lassell. | Nellie F. Ball..... | 640 | 208 |
| | Ella R. Avery..... | 620 | |
| | Cora A. Reycroft..... | 620 | |
| | Frances E. Whoriskey.. | 620 | |
| Lowell. | Winona Abercrombie... | 640 | 93 |
| | Lucy E. Cyr ..... | 620 | |
| | Nellie F. McCarthy.... | 620 | |
| Mason. | M. Lizzie Evans..... | 630 | 100 |
| | Lizzie J. Baldwin ..... | 520 | |
| Otis. | Luvia Goodnow..... | 660 | 382 |
| | Fannie Allen..... | 620 | |
| | Martha H. Butler..... | 620 | |
| | Josephine M. Doherty.. | 620 | |
| | Ellen N. Leighton..... | 620 | |
| | Luella M. Marsh..... | 620 | |
| | Ellen C. Walsh..... | 620 | |
| | Kate F. Wellington.... | 620 | |
| Quincy. | Charlotte E. Jewell.... | 630 | 74 |
| | Lucy C. Wyeth..... | 620 | |
| Reed. | Margaret Kidd..... | 640 | 195 |
| | Harriet N. Keyes..... | 620 | |
| | Nellie E. Pratt..... | 470 | |
| | Julia A. Robinson ..... | 400 | |
| Riverside. | Elizabeth A. Tower.... | 640 | 187 |
| | Amanda M. Alger..... | 620 | |
| | Mary A. Burke..... | 520 | |
| | Ella E. Coye..... | 620 | |
| Sargent. | Frances J. Harrod..... | 640 | 187 |
| | Christina D. Barbey..... | 520 | |
| | Mary A. Brown ..... | 620 | |
| | Ella M. Leaver..... | 400 | |
| Stearns. | Helen M. Ward ..... | 640 | 187 |
| | Maria J. Bacon ..... | 620 | |
| | Ellen A. Cheney..... | 620 | |
| | Eva A. Taylor..... | 470 | |
| Tarbell. | Mary H. Ross..... | 640 | 192 |
| | Mary A. Davis..... ... | 470 | |
| | Charlotte E. Hezlitt..... | 570 | |
| | Emma J. Young..... | 620 | |
| Willard. { Grammar. Primary. | Amelia Wright ..... | 680 | { 99 548 |
| | S. N. Chamberlain..... | 620 | |
| | Belle F. Gulliver..... | 470 | |
| | Julia S. Gushee ..... | 620 | |
| | Mary E. G. Harrington | 620 | |
| | Louise W. Harris..... | 620 | |

## Tabular View of the Public Schools—*Continued.*

| Names of Schools. | Teachers. | Salaries. | No. of Scholars Jan. 1, 1888. |
|---|---|---|---|
| Willard. | Kate M. Lowell..... | 620 | |
| | S. Agnes Mulloney..... | 400 | |
| | Emma C. Otis..... | 620 | |
| | Mary E. Sawyer..... | 620 | |
| | Grace R. Woodward..... | 620 | |
| | Laura Wright..... | 620 | |
| Wyman. | Fannie E. M. Dennis.... | 650 | 222 |
| | M. Jennie Biddle..... | 520 | |
| | M. Carrie Dickman..... | 620 | |
| | Georgiana B. Dutcher.. | 620 | |
| | Mary M. Gilman..... | 620 | |
| Wellington { Grammar | Herbert H. Bates..,.... | 1,600 | { 277 |
| Wellington { Primary. | Agnes I. Rounds ..... | 1,000 | { 183 |
| | Training Class..... | 3,000 | |

| | |
|---|---|
| TEACHER OF SINGING — Nathan Lincoln . . . . . | $1,700 |
| TEACHER OF DRAWING — Augusta L. Balch . . . . . | 850 |
| SECRETARY AND LIBRARIAN OF THE HIGH SCHOOLS — Mattie L. Babbitt . . . . . | 500 |
| SUPERINTENDENT — Francis Cogswell . . . . . | 3,000 |
| AGENT — Sanford B. Hubbard . . . . . | 1,500 |

The Wellington School is a training school, composed of grammar and primary scholars, taught by young ladies, graduates of Normal Schools and candidates for the office of teacher, under the direction and with the assistance of the master of the schoo and his assistant.

Temporary assistants and members of the Training Class are counted as seven teachers, the sum of their salaries being about equal to the amount paid to that number of regular teachers.

The post-office addresses of the several schools are as follows:—

CAMBRIDGE — Washington*, Agassiz, Dunster, Holmes, Lowell, Quincy, Riverside.

CAMBRIDGEPORT — Latin, English High, Allston*, Harvard*, Webster*, Boardman, Bridge, Dana, Felton, Gannett, Mason, Sargent, Stearns, Tarbell, Wellington, Willard.

EAST CAMBRIDGE — Putnam*, Thorndike*, Gore, Lassell, Otis.

NORTH CAMBRIDGE — Shepard*, Reed, Wyman.

MOUNT AUBURN — Corlett*, Cushing.

* Grammar Schools.

## Summary.

| | |
|---|---|
| Number of pupils in Latin School | 238 |
| Number of pupils in English High School | 320 |
| Number of pupils in Grammar Schools | 5,049 |
| Number of pupils in Primary Schools | 4,682 |
| | 10,289 |

COST OF INSTRUCTION.

| | | | |
|---|---|---|---|
| Latin School | $11,615 | For each pupil | $48 80 |
| English High School | 13,950 | " " " | 43 59 |
| Grammar Schools | 79,500 | " " " | 15 75 |
| Primary Schools | 59,460 | " " " | 12 70 |
| Teacher of Singing | 1,700 | | |
| Teacher of Drawing | 850 | | |
| Superintendent | 2,900 | | |
| Agent | 1,500 | | |
| | $171,475 | For each pupil | $16 67 |

| | |
|---|---|
| Number of pupils belonging to the Public Schools, Jan. 1, 1888 | 10,289 |
| Number of pupils belonging to the Public Schools, Jan. 1, 1887 | 9,918 |
| Increase | 371 |

| | |
|---|---|
| Average annual increase of pupils from 1860 to 1874 (inclusive) | 246 |
| Decrease of pupils, 1875 | 268 |
| Increase of pupils, 1876 | 6 |
| Decrease of pupils, 1877 | 81 |
| Decrease of pupils, 1878 | 50 |
| Increase of pupils, 1879 | 57 |
| Increase of pupils, 1880 | 286 |
| Increase of pupils, 1881 | 403 |
| Increase of pupils, 1882 | 443 |
| Increase of pupils, 1883 | 280 |
| Increase of pupils, 1884 | 165 |
| Increase of pupils, 1885 | 589 |
| Increase of pupils, 1886 | 267 |
| Increase of pupils, 1887 | 371 |

| | |
|---|---|
| Number of Schools | 33 |
| Number of School-rooms | 226 |
| Number of Teachers | 237 |

| | |
|---|---|
| Salaries of three Truant Officers | $2,700 |
| Cost of instruction in Evening Schools | 932 |
| Cost of instruction in Drawing Schools | 1,000 |

### Remarks on the Statistics.

The increase over the last school year in the number of pupils registered is 145; in the average number belonging, 182; in the average daily attendance, 142. In the per cent of attendance there has been a decrease of two-tenths of one per cent. The number belonging to the schools in December, 1886, was 9,918; in December, 1887, 10,289, an increase of 371.

The entire cost of the day schools, excluding the expenditure for new school houses and new furniture, exceeds that of last year by $15,142.73, and the cost per pupil by $1.10; the cost per pupil, however, is 29 cents less than in 1885, and about 54 cents less than in 1884. In the cost of instruction the increase is $6,857.64, the increase per pupil being 33 cents. Were the cost per pupil compared with that of the previous year (1885), there would be a small decrease.

While Cambridge expends a large amount for her schools, there are *two hundred and thirty-four* towns and cities in the State which make a larger expenditure in proportion to their wealth. In a list of the twenty-three cities, arranged numerically according to the percentage of their taxable property appropriated to the support of public schools for the year 1886–87, Cambridge is the *fifteenth*, and compared with the fifty-four towns and cities of our county, Cambridge is the *thirty-third*. In a list of the towns and cities of the State, arranged numerically according to the sum appropriated for each child between five and fifteen years of age, Cambridge is the *thirty-ninth*.

These statistics relating to the schools of the State are taken from the report of the Secretary of the Board of Education.

### Attendance.

On the occasion of the graduating exercises at the Webster School in June last, the master gave a brief account of his connection with the school, and spoke of some of the changes which had taken place during this period of fifteen years. He said that fifty teachers had been associated with him, and he spoke of them as having rendered the city valuable service. In special words of approbation he referred to her who for seven years

had filled the position of master's assistant, and whose resignation was accepted at the close of the summer term. This teacher, Miss Capen, was held in high esteem by the Committee. She was kind, judicious, and faithful, and her influence for good will abide with her pupils.

He spoke of alterations made in the building; of improvements in some departments of instruction; of plans for the more rapid promotion of pupils from class to class; of a decrease from 10 per cent fifteen years ago to $2\frac{1}{2}$ per cent the present year in the number of cases of tardiness, and of an increase of $2\frac{1}{2}$ per cent in the average per cent of attendance; and then, notwithstanding these favorable statistics, he presented figures in regard to attendance which in themselves are startling, and which should be thoughtfully considered by every person having a child in school. The figures are these: Number of half-days lost by absence during the autumn term, 12,683; during the winter term, 11,102; during the spring term, 6,850, making an aggregate of 30,635 sessions. From this result he deduced the following conclusions: (1) That, on a basis of forty weeks or two hundred school days to a year, the loss of time is equivalent to the absence of seventy-six pupils for the entire school year; and as a result of this absence a large proportion of this number of pupils fail of promotion. (2) That, counting fifty pupils to a teacher, the services of one and a half teachers are lost to the city. (3) That, as the school averages nearly eight hundred pupils, 10 per cent of the school year is lost. He added that he was not unmindful that a part of this absence is due to sickness, but thought not more than one-third is traceable to that source. Too frequently children are detained from school for trivial reasons. Many parents do not realize how seriously even a few days of absence interfere with the progress of a child. The harm comes less from the loss of time than from the interruption of school work.

The following tables made from the records of attendance kept for the school year 1886–87 show that the loss of time by reason of absence in the Webster School is not exceptional, the average loss in the other grammar schools being fully as great. In preparing these tables the attendance of no pupil was included who had not been a member of the school for the entire school year.

| | Percentage of Pupils who were | | | | |
|---|---|---|---|---|---|
| | Not Absent a single Session. | Absent from 1 to 10 Sessions. | Absent from 10 to 25 Sessions. | Absent from 25 to 50 Sessions. | Absent more than one-eighth of the Time. |
| First Class . . . . . | 10.8 | 42.3 | 31.3 | 10.5 | 5.1 |
| Second " . . . . . | 7.9 | 38.9 | 25.9 | 15.3 | 12.0 |
| Third " . . . . . | 5.3 | 34.1 | 25.1 | 21.6 | 13.9 |
| Fourth " . . . . . | 4.7 | 32.3 | 28.8 | 17.9 | 16.3 |
| Fifth " . . . . . | 4.2 | 25.6 | 26.3 | 23.9 | 20.0 |
| Sixth " . . . . . | 2.7 | 27.9 | 23.0 | 22.3 | 24.1 |

In the primary schools 22 per cent of the whole number of pupils lost on an average 138 sessions each, or more than one third of the entire school year.

### School Accommodations.

The request of the School Committee for a new grammar school house in Ward III, to be built on the site of the present school house, was favorably considered by the City Council. The house was so planned as to make it practicable to build a wing first, and afterwards the main building. By this arrangement the old school house could be used until the wing was finished, and the wing could be used during the demolition of the old house and the erection of the new; an important consideration, as it would be difficult to secure temporary accommodations for the school. On account of an unfortunate delay in beginning the work, the wing is not yet finished, and the Putnam School is still confined to its small ill-ventilated rooms. It is expected that the entire building will be completed during the coming year. This school house when finished will contain thirteen school rooms, a large hall, and all the conveniences of dressing-rooms, closets, etc., found in our new school houses.

The cost of the wing, including that of the land bought for the purpose of enlarging the lot, will be about eighteen thousand dollars.

A desirable site has been secured for a new school house in Ward V. A large building will not at first be required, four or

five rooms being sufficient to meet the demand for two or three years; but in the near future a grammar school should be organized, and this school house should be planned with that in view. The location is almost midway in a straight line between the Washington and Shepard schools, and a school house in this vicinity would relieve both of these schools. To save the City a large expenditure at one time, this school house might be built in two sections, one section to be built the coming year, and the other when needed.

The large increase of the Latin School made it necessary to provide room for sixty pupils outside the present building, and were it not for the generosity of Mr. Rindge the problem of High School accommodations would be a difficult one to solve.

It is now understood that a new school house will be built for the English High School on land given by Mr. Rindge, near the new public library building, which is also a gift of Mr. Rindge, and that the Latin School will be moved to the building now occupied by the English High School.

The unsanitary condition of the old part of the Webster school house should at once receive the attention of the City Council. The plumbing should be changed, and made like that in the new part of the building. In the interest of economy the seven furnaces now used in heating the building should be removed, and steam should be substituted.

During the year, the Harvard school house has been thoroughly renovated, and the interior is in excellent condition. In fact, the Committee on Public Property is now able to care for the school houses in a more systematic manner than heretofore, there being an efficient Superintendent of Public Buildings to carry out their plans. If the Committee would provide competent and faithful janitors for all the schools, the School Committee would have little cause of complaint in regard to matters under the control of the Committee on Public Property.

### Free Text-Books and Supplies.

From the annual report of the Committee on Supplies we copy the following as being of special interest to the public:

The free text-book law has now been in force for three school years, and the average cost of each year, per pupil, to the City of Cambridge has been as follows: 1884–85, $1.88; 1885–86,

$1.17 ; 1886–87, $1.05. The Committee believe that the average of the year just ended is the lowest we are likely to attain, because of the necessity of replacing each year hereafter, a large number of the books now in use with new copies.

The Committee desire to express their appreciation of the valuable assistance they have received from the teachers in the management of this important branch of our school system, since it is largely owing to their care and oversight that so many of the text-books which have been in use for three years are still in good condition and suitable for further service.

**Summary of Expenditures for the Year.**

| | Total. | Per Pupil. |
|---|---|---|
| Latin School . . . . . | $717 90 | $3.932 |
| English High School . . . | 1,264 91 | 3.798 |
| Grammar Schools . . . . | 5,941 46 | 1.363 |
| Mixed Schools . . . . . | 1,002 33 | .736 |
| Primary Schools . . . . | 896 77 | .197 |
| Evening Schools . . . . . | 54 33 | |
| Miscellaneous Expenses . . | 371 87 | |
| Offices of Supply Committee and the Sup't . . . | 155 81 | |
| Supervisor of Drawing, Singing Master, and Secretary of the Board . . | 16 77 | |
| 9,918 pupils . . . . . | 10,422 15 | $1.051 |

**Text-Books and Course of Study.**

The Committee on Text-Books in its annual report recommended certain books for use in the primary schools ; also, the use of some standard works of English literature in each class of the grammar schools, the choice of books to be made by the master of the school, subject to the approval of the School Committee. This recommendation was adopted, and the way is now open for the introduction of a systematic course of reading in our schools. By a wise selection of these books, and by an

agreement among the masters by which different sets of books shall be placed in each school to be exchanged from time to time, an abundant supply of wholesome reading will be provided for all the pupils; and, as a result, it is believed that a taste for reading will be formed which will lead to the selection of better books on the part of the pupils when left to their own choice.

When the Committee on Text-Books reported in April, it was their intention to revise the course of study and present it to the Board for approval. In the opinion of this Committee, the course is too crowded. Within these recent years new studies have been introduced into our schools, but no reduction has been made from the former requirements. It is therefore recommended that the course of study be at once revised, and, after receiving the approval of the School Committee, be printed in connection with this report.

### The High Schools.

The Latin School and English High School completed their first entire year as separate organizations with the close of the summer term, and the results of the year's work were of the most satisfactory character. The Latin School has increased in numbers beyond the expectation of the Committee, and the building provided for it is already filled to overflowing.

For many years the Cambridge High School, with its Classical and English departments under one management, was considered one of the best in the State as a fitting school for college; but it is believed that the Cambridge Latin School affords even better advantages than were enjoyed at that school, and that the English High School as now organized is better adapted to the wants of pupils not intending to pursue a collegiate course. Both schools are now free to work in the line of their best interest, unhampered by the presence of a large body of pupils having entirely different ends in view.

By retaining the services of Mr. Hill, who was invited to a neigbhoring city at a greatly increased salary, the English High School is assured a continued prosperity; and with the completion of the new building the City of Cambridge will enjoy facilities for high school instruction unsurpassed, we believe, by any city in the Commonwealth.

## The Wellington School.

[This is the Cambridge Training or Practice School.]

This school was opened in September, 1884, and differs from the other schools in this respect, — all the classes are taught by young teachers. Their work, however, is done under the immediate supervision of a master and a female assistant, who are held responsible for the instruction and management of the school.

The object in conducting a school on this plan is to give our Cambridge young women who desire to teach, and who have made special preparation for the work, an opportunity to gain experience under conditions favorable to their own success, and without prejudice to the interests of their pupils.

Graduates of the English High School or of the Latin School, who have also graduated from one of our State Normal Schools or from the Boston Normal School, will be preferred candidates for the position of teacher in this school. Other persons of equal attainments may be elected.

The required term of service is one year, and all teachers accepting positions do it with the understanding that they will remain for this length of time, unless excused by the Committee on the Training Class.

The money compensation for service is two hundred dollars per annum.

The school contains all the classes of the primary grade, with the third, fourth, fifth, and sixth classes of the grammar grade, the number of pupils being about four hundred and fifty.

The Committee on the Training Class is authorized in the management of this school "to expend for salaries, in its discretion, an amount not exceeding the aggregate maximum salaries paid to female teachers for the instruction of the same number of pupils in the primary and grammar schools."

It is now three full years since the establishment of this school, a sufficient length of time for us to form an intelligent opinion of its practical value. Up to the present time, December 31, thirty-six teachers have either completed the required term of service or have been excused under the rules that they might accept permanent positions. Thirty of these have already obtained schools. Four are still connected with the

Training School; but two of them have just completed their year's service, while the other two have had opportunities to teach as substitutes the larger part of the time since their graduation. One of the remaining two had a temporary appointment last year for seven months, and has been almost constantly employed during the present school-year. The other graduate was not a resident of Cambridge, and it is not known whether she has engaged in teaching.

With only one or two exceptions, these young ladies have become successful teachers, and the expectations in regard to the school in this respect have been fully realized. The only doubt which existed in the minds of the Committee in the beginning was whether the pupils attending this school would be as well taught as those attending the other schools. It was claimed by the advocates of this plan that the inexperience of the young teachers would at least be offset by the large experience of the principal and his assistant; and it is believed by persons familiar with the work of the school that the results have vindicated the claim. The work has been systematically arranged and closely supervised, and the discipline of the school has been successfully maintained.

With the constant call for teachers to act as substitutes, a training school seems to be a necessity. Even now it is sometimes difficult to fill the places of teachers temporarily absent. Recently seven substitutes were needed on the same day, and several times within the past few months a school has been closed because no substitute could be secured.

These statements in regard to the appointments of the grad uates of the Training School, and in regard to the demand for teachers, have been given because it is sometimes said that our Cambridge girls do not have an opportunity to teach in our schools; while the fact is, that the number of Cambridge girls who have given themselves special preparation for the work of teaching, and have shown aptitude for it, is not equal to the demand.

### Industrial School.

The experiment of giving instruction in manual training to the pupils of the public schools has been tried in a limited way for the past four years. Annually seven classes of twelve pupils

each, selected from the seven grammar schools, have received elementary instruction in carpentry.

Undoubtedly there is no school question more prominently before the community at the present time than that of making manual training a branch of instruction in the common schools; and in Cambridge this question has assumed special importance since Mr. Frederick H. Rindge made to the City his generous offer of an industrial school building ready for use, together with a site for the same.

The object and aim of the school as proposed by him are best made known in his own words. He says: "I wish the plain arts of industry to be taught in this school. I wish the school to be especially for boys of average talents, who may in it learn how their arms and hands can earn food, clothing, and shelter for themselves; how, after a while, they can support a family and a home; and how the price of these blessings is faithful industry, no bad habits, and wise economy, which price, by the way, is not dear. I wish also that in it they may become accustomed to being under authority, and be now and then instructed in the laws that govern health and nobility of character. I urge that admittance to said school be given only to strong boys who will grow up to be able working-men.

"Strict obedience to such a rule would tend to make parents careful in the training of their young, as they would know that their boys would be deprived of the benefits of said school unless they were able-bodied. I think the industrial school would thus graduate many young men who would prove themselves useful citizens."

This is only one of Mr. Rindge's munificent gifts to the City of Cambridge; but, perhaps, more than that of the Library Building, or the City Hall, or the site for the High School House, it reveals the character of the man, and his purpose to use his wealth in such a manner as shall not only reflect honor upon himself but be an immediate and lasting benefit to others.

It becomes the duty and privilege of the School Committee to coöperate in carrying out his plans so far as the Industrial School is to be brought into connection with the public school system. For this purpose the Committee has sought information in regard to the organization and work of the industrial schools of our

country, and more especially in regard to the work of manual training as connected with the public schools.

Believing this information will be of interest at the present time, the Superintendent recommends that a portion of it be printed in the Appendix to this report.

## Evening Schools, 1886-1887.

No change has been made in the arrangements for the evening schools, for several years, except that during the past year no school was opened in Ward V. The school in Ward III was taught, as usual, in two sections, one section meeting three evenings a week, and the other section two evenings. The school in Ward IV met three evenings a week. Both schools were continued from the middle of October to the first of March. The attendance was as follows: Number belonging to the school in Ward III and present more than two sessions, 174; in Ward IV, 137. Average attendance in Ward III, 60; in Ward IV, 64. Average number of pupils to a teacher in Ward III, 7.3; in Ward IV, 12.8.

The accommodations for the school in Ward IV were better than those in Ward III, and this may account in part for the marked difference in the average attendance as compared with the whole number.

Evening schools have become a part of the public school system. The question is no longer as to their maintenance, but whether they shall be so organized as to secure the object for which they were established. The success of these schools depends upon the efficiency of the teachers, the wise classification of the pupils, the suitability of the accommodations, and the enforcement of strict rules in regard to attendance. It may be advisable to employ a larger number of experienced teachers than has been the practice for several years, and it is certainly essential to the prosperity of the schools that better accommodations be provided. It is not to be expected that rooms will be set apart for the exclusive use of these schools; and while there are objections to using the day school-rooms for the evening schools, the Committee can suggest no better plan. It is hoped, therefore, that before the opening of the evening schools another year provision will have been made for lighting a sufficient

number of our school-rooms to give the evening schools ample accommodations.

### Evening Drawing Schools, 1886-1887.

These schools are accomplishing all that can reasonably be expected while they are confined to their present accommodations. There can be no increase in the number of pupils, for the seating capacity of the rooms which they occupy was exhausted four years ago; and the average attendance has remained almost unchanged since that time, being for the four years, respectively 104, 110, 106, 107. There can, moreover, be little or no improvement in the plan of giving instruction while beginners and advanced pupils are taught in the same room. The returns for these schools show that among the pupils there were sixty-eight between the ages of twenty and thirty, and twenty-one between thirty and forty-five; and that there were twenty-five pupils who were members of our High Schools, drawing not being taught in these schools.

The average attendance for the fifty sessions was: free-hand class, 62, with three assistant teachers; mechanical class, 45, with two assistant teachers.

In these days when thoughtful persons are planning how to provide innocent amusement for the young people of our large towns and cities, it cannot be a wise policy to limit the accommodations for our evening schools. Every encouragement should be given and every facility offered to those who are inclined to spend their evening hours, not in amusement merely, but in earnest effort for self-improvement. The forty young men and women whose average attendance was forty-five sessions of the school out of the fifty, are deserving of public commendation; and it may be well in the future to recognize by certificate or diploma the faithfulness of such pupils.

### Vacation Schools.

The School Committee of 1886 at the December meeting voted, "that the experiment of opening vacation schools be tried during the summer vacation, and that an appropriation of four hundred dollars for this purpose be introduced into the estimates for the coming year."

The City Council did not make the appropriation, and the

schools were not opened. A similar order has been adopted the present year, but it is for the City Council to decide whether or not vacation schools shall be established.

### Music.

The most important change in connection with the teaching of music has been the re-division of the time given by the singing-master to the grammar and primary schools. Heretofore he has given seven-tenths of his time to the grammar schools, and three-tenths to the primary schools. The grammar schools received this large portion of his time, because in addition to the supervision of the lower classes he taught the upper classes, while all the classes of the primary schools were taught by the regular teachers. The number of separate classes requiring his supervision has greatly increased during these recent years, and of necessity his visits in the work of supervision have been either less frequent or of shorter duration. Early in the year the Committee on Music decided that with the growth of the schools the work of the singing-master must become more and more that of supervisor, and that his time should be more equally divided between the grammar and primary schools. In accordance with this decision, a schedule of time was prepared by which the morning sessions are given to the grammar schools, and the afternoon sessions to the primary schools. The plan seems to be the best that can be made, as the time of the singing-master is economically and still very evenly distributed.

### Temperance Instruction.

For more than two years physiology and hygiene, with special reference to the effects of alcoholic drinks, stimulants, and narcotics on the human system, have been required branches of instruction in the public schools. The Committee believe that the teachers have faithfully and conscientiously endeavored to make effective this provision of the Statutes. The temperance exercises in all the rooms of the several grammar schools on the occasion of the public examination, and the results of the written examination for promotion to the High Schools show that this subject has found its place among those regularly taught in the schools. In the beginning it was thought best

that the instruction should be given orally, as the text-books on physiology and hygiene were either originally written without special reference to the effects of alcoholic drinks, stimulants, and narcotics on the human system, or hastily prepared to meet the new requirements. Undoubtedly the pressing demand for a suitable text-book to be placed in the hands of the pupils has led to the preparation of better books than could at first be obtained. The Superintendent, therefore, suggests that during the coming year the grammar schools be at least partially supplied with books on this subject. Two sets of fifty copies each for each school would enable the Committee to decide as to the advantage of supplying all the classes at a future time. One of the sets should be of the most elementary character. A book prepared somewhat after the plan of Miss Wiggin's *Lessons on Manners* would be more likely to benefit the younger children than a more scientific presentation of the subject.

Since the above was written the annual report of the State Board of Education has been printed, from which the following remarks on this subject are taken: "The Legislature of 1885 passed a law requiring 'special instruction to be given as to the effects of alcoholic drinks, stimulants, and narcotics on the human system, as a regular branch of study to all pupils in all schools supported wholly or in part by public money, except special schools maintained solely for instruction in particular branches, such as drawing, mechanics, art, and like studies.' That the Board might be fully informed respecting the working of this law, it was printed in full on the blank forms for school returns sent to the towns, and the question was asked, 'Is this act duly observed in the schools of your town?' Returns from all the towns of the State bring answers, most of which are affirmative; a few say no, and a few others report only a partial compliance. From information gathered from all sources the Board feel justified in saying that fair progress has been made during the year. The subject was presented at all the Teachers' Institutes held last year, and teachers grow more interested in this new study as they gain light on the best method of introducing it to their classes. The wish is frequently expressed for better text-books, especially for graded books. In some towns but one book is provided, and the teachers are expected to simplify it for the youngest class, and to amplify it for the most

advanced, by knowledge gathered from outside sources. This is a great demand to make upon teachers already overburdened with their duties. It is not too much to expect that school committees will give their attention to this need of text-books for the use of their teachers, and either find among those already published such as are satisfactory or make known their need in some effective way. In many towns admirable work is done, and on the whole the state of things is encouraging; but there is yet much more to be done before the law is everywhere obeyed. That so many earnest committees and faithful teachers are alive to the importance of the study, and that the graduates of the Normal Schools are now fitted to teach it, is the best promise for the future."

**Habitual Truants and Incorrigible Pupils.**

Provision has already been made for the confinement, discipline, and instruction of habitual truants. Is it not equally important that a law be enacted under which a child who attends school, but who persistently violates the rules and regulations necessary to secure the object for which schools are maintained, shall be dealt with in a similar manner? The truant suffers personal loss when out of school, but does not occasion loss to those who attend; while the persistently disobedient and refractory pupil profits little, if any, by being in school, and seriously interferes with the progress of others. In dealing with such pupils at the present time, the only means available as a last resort is to expel them from school, and by so doing make them companions of the truant, thereby defeating the very object sought to be accomplished. A year ago an effort was made to secure a change in the law relating to truancy, so as to include among the classes of children affected by its provisions those who persistently refuse to comply with the reasonable rules and regulations of the school.

The committee of the Legislature on education after considering the subject reported a bill which passed the Senate, but was lost in the House by a small majority. The bill was an amendment to sections ten and twelve of chapter forty-eight of the Public Statutes. These sections with the proposed amendments would read as follows (the amendments are printed in italics):

SECTION 10. Each town shall make all needful provisions and arrangements concerning habitual truants and children between seven and fifteen years of age who may be found wandering about in the streets or public places therein, having no lawful occupation or business, not attending school, and growing up in ignorance, *and such children as persistently violate the reasonable rules and regulations of the common schools*, and shall make such by-laws as shall be most conducive to the welfare of such children, and to the good order of such town; and shall provide suitable places for the confinement, discipline, and instruction of such children.

SECTION 12. Any minor convicted under a by-law made under section ten of being an habitual truant, or of wandering about in the streets and public places of a city or town, having no lawful employment or business, not attending school, and growing up in ignorance, *or of persistently violating the rules and regulations of the common schools*, shall be committed to any institution of instruction or suitable situation provided for the purpose, under the authority of said section or by-law, for a term not exceeding two years.

The importance of securing these amendments cannot be realized except by persons familiar with the work of school. It is often the case that a single boy by his repeated acts of disobedience almost monopolizes the time and vitality of the teacher, and thereby deprives the other pupils of the instruction to which they are entitled. Such boys are the *anarchists* of the school community, and should be treated as the worst enemies of its order and welfare; but the means of dealing with them are insufficient. There can be no worse policy than to let them remain where their presence is a constant injury to others. It is hoped that during the coming session of the legislature the proposed amendments will be adopted, and the incorrigible pupil as well as the truant provided with "a suitable place" where he can receive instruction without interfering with those who are disposed to make good use of their school privileges.

Cambridge is not alone in asking for this law. Members of the School Committee and the Superintendent of Schools of the City of Newton were among the petitioners for the proposed amendments. In his last annual report the Superintendent of the Newton schools, Mr. Emerson, in speaking of what had been done with truants, says:

"In this connection I wish to call your attention to another class of pupils who seem to me to require exceptional treatment. I refer to those boys who are constitutionally obstinate and refractory, 'who persistently refuse to comply with the reason-

able rules and regulations of the schools,' and thus set at naught the authority of the teacher, whose example is pernicious, and whose presence is a constant menace to the good order and morals of the school. It is gratifying to know that this class of pupils is not numerous in the schools of Newton. Still their number is sufficient to occasion solicitude in the minds of many thoughtful parents and teachers. Being beyond the reach of the ordinary and approved means of school discipline, they require special consideration and are entitled to the largest measure of our charity and wisdom. For good or for evil they are soon to be citizens of our Commonwealth. What shall be done with them? Shall we attempt to reform them by a resort to corporal punishment? Possibly their present condition is due to a too liberal use of this means of discipline. At least public opinion will not tolerate so vigorous a use of the rod as would be needful to secure their reformation. Shall they be suspended from school? Suspension means still greater opportunities for that evil communication that corrupts good manners. Shall they be kept in school to the injury of the well disposed and obedient? 'Parents have a right to demand that the community that assumes the education of their children shall see that they are protected from the influence of such as these.'"

Mr. Emerson also recommended that the city of Newton invite two or more of the neighboring municipalities to join in a petition to the County Commissioners for the establishment of a school to which truants, and, in case the Legislature shall give the requisite authority, those pupils who persistently refuse to comply with the reasonable rules and regulations of the schools, may be sent for discipline and instruction. He adds: "A school of this character would be a lasting benefit to the children who need the restraints of such an institution, while the withdrawal of this element from our schools would very much increase their efficiency and usefulness."

The authority under which such a school can be established is given in section 14, chapter 48 of the Public Statutes. It is as follows: "If three or more towns in any county so require, the County Commissioners shall establish at the expense of the county, at convenient places therein, other than the jail or house of correction, truant schools for the confinement, discipline, and instruction of minor children convicted under the provisions of

sections ten and twelve [of the truant law]; and shall make suitable provision for the government and control, and for the appointment of proper teachers and officers thereof."

The recommendation of Mr. Emerson is an important one. By statute all cities and towns are required to provide themselves with suitable places for the restraint, discipline, and instruction of truants. In Cambridge, and in many other cities and towns, the Almshouse is the place to which truants are sent. But there is a general feeling that an almshouse is not a proper place for the confinement of this class of children. A truant school should be one of rare excellence, and all the surroundings and influences should be helpful. In the management of our truants at the present time there is no cause for complaint, for the Superintendent of the Almshouse is an exceptional man for such a position. The objections lie in the character of the place, and in the fact that the school is but an adjunct of the institution, and from the nature of the case must be considered of secondary importance. Hampden County has a county truant school in Springfield. Lawrence early established an industrial school for the purpose of providing a suitable place for her truants. It seems to the Committee that the time has come when either the county should be called upon to establish a school, or the towns and cities in this vicinity should unite in providing one to which they could send their truants with a reasonable expectation of doing them good.

Further information in regard to industrial schools will be found in the separate report of the School Committee.

FRANCIS COGSWELL,
*Superintendent of Public Schools.*

**Members of the School Committee for 1887.**

WILLIAM E. RUSSELL, *Chairman ex officio.*

JOHN L. HILDRETH,
EDWARD H. HALL,
EPHRAIM EMERTON*,
ALICE M. LONGFELLOW†,
PHEBE M. KENDALL,
HENRY N. TILTON,
JAMES L. PAINE,
FELIX CONLAN,
FREEMAN HUNT,
PATRICK J. FINNIGAN,
WILLIAM H. ORCUTT,
ASA P. MORSE,
MOSES D. CHURCH,
WILLIAM A. START,
ALBERT M. BARNES,
JOHN W. FAIRBANKS.

* Resigned in September. † Elected in October.

# APPENDIX.

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## ORDINANCES

### PASSED SINCE THE REVISION OF THE ORDINANCES.

**An Ordinance in Relation to the Salary of the City Physician.**

SECTION 1. From and after the first Monday of January, 1880, the salary of the City Physician shall be at the rate of one thousand dollars per annum.

SECT. 2. So much of Sect. 1 of Chap. 27 of the Revised Ordinances as is inconsistent herewith is hereby repealed.

[*Adopted March* 3, 1880.]

**An Ordinance in Amendment of the Thirty-sixth Chapter of the Revised Ordinances.**

Section 27 of Chap. 36 of the Revised Ordinances is hereby amended by prefixing to the words in said section the following words: "No persons shall swim or bathe, or permit any animal under his care to swim or bathe, in Fresh Pond."

[*Adopted June* 2, 1880.]

**An Ordinance establishing the Salary of the Inspector of Vinegar.**

SECTION 1. The salary of the Inspector of Vinegar shall be at the rate of one hundred and seventy-five dollars per annum.

SECT. 2. This ordinance shall take effect upon its passage.

[*Adopted Nov.* 3, 1880.]

**An Ordinance in Amendment of an Ordinance in Relation to Accounts and Finance.**

Chapter 6 of the Revised Ordinances is hereby amended by adding at the end of section 24 the words: "The Committee on Finance shall employ such clerks, permanent and temporary, as may be necessary in the different departments. The duties and compensation of such clerks shall be determined by said Committee, subject, however, to change at any time by order of the City Council. No head of a department shall employ any extra clerical assistance in behalf of the city without having first obtained the consent of the Committee on Finance."

*Adopted Nov.* 3, 1880.]

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**An Ordinance in Amendment of an Ordinance in Relation to the Cambridge Public Library.**

Chapter 7 of the Revised Ordinances is hereby amended by striking out the second section thereof, and inserting in its place the following:

"SECT. 2. The care, superintendence and management of said library shall be vested in a board of Trustees, to consist of one member of the Board of Aldermen, one member of the Common Council, and five citizens at large, one of whom shall hold office for one year, one for two years, one for three years, one for four years and one for five years, their several terms of office to be determined by lot, the same to be chosen in the month of January next; and annually thereafter in the month of January one citizen at large, whose term of office shall be for five years from the third Monday in said January, unless sooner removed."

Also, in the third section, by striking out the word "three" in the fifth line thereof, and substituting therefor the word "five," relating to the term of office of the trustees.

Also, by striking out the fourth section, and inserting in place thereof the following:

"SECT. 4. Said trustees may choose from their number a chairman and secretary; they shall choose, annually, in the month of January, a suitable person to be librarian, who shall be removable at the pleasure of the board, and shall receive

such compensation as the trustees may from time to time determine."

The foregoing amendments shall take effect on the first Monday in the month of January, 1881, except that the trustees heretofore elected shall hold office until their successors are chosen and qualified.

[*Adopted Nov.* 17, 1880.]

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**An Ordinance in Amendment of an Ordinance in Relation to Sinking Funds.**

Chapter 34 of the Revised Ordinances is hereby amended by striking out the last five lines of Section 4, and inserting in place thereof the following words:

"And whenever any payment is so made before the thirtieth day of November, interest shall be paid thereon by the Commissioners of the Sinking Funds from the time of said payment until said thirtieth day of November, at such rates as the Committee on Finance shall from time to time determine."

[*Adopted Nov.* 17, 1880.]

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**An Ordinance in Amendment of an Ordinance in Relation to Accounts and Finance.**

Chapter 1 of the revised ordinances is hereby amended by inserting in the eighth line of the seventh section thereof, after the word "repair," the words "and shade trees and public grounds;" also, in the fourteenth line of the same section, by striking out the words "shade trees and public grounds."

[*Adopted Nov.* 17, 1880.]

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**An Ordinance in Relation to the Compensation of the Assistant City Clerk.**

Chapter 27 of the Revised Ordinances is hereby amended, as follows, viz.:

"The salary of the Assistant City Clerk shall be twelve hundred dollars per annum, to date from Jan. 1, 1881."

[*Adopted March* 23, 1881.]

**An Ordinance in Amendment of the Ordinance in Relation to the Water Works.**

Section 25 of Chapter 39 of the Revised Ordinances is hereby amended by striking out the word "thirty," in the second line of the second paragraph and inserting in place thereof the word "fifteen."

[*Adopted May* 18, 1881.]

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**An Ordinance in Amendment of an Ordinance in Relation to Streets.**

Chapter 36 of the Revised Ordinances is hereby amended by adding, at the end of Section 26, the following:

"Whoever shall be found in possession of a club or bludgeon, on any street, park, or way, with intent to use the same in sports, sham-fights, or strife, or to intimidate persons or horses, shall be fined not less than one dollar nor more than twenty dollars.

"Whoever shall be found in possession of toy-pistols, crotches, rubber slings, or other devices for throwing missiles of any kind, with intent to use the same to the injury of persons or property, or to the annoyance or discomfort of any person, upon any street, park, or way, shall be fined not less than one dollar nor more than twenty dollars."

[*Adopted Dec.* 7, 1881.]

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**An Ordinance in Amendment of an Ordinance in Relation to Streets.**

Chapter 36 of the Revised City Ordinances is hereby amended as follows in Section 14, by inserting in the fifth line, after the word "aldermen," the words, "or some person by them authorized for that purpose."

Also, in Section 15, by inserting in the first line, after the word "aldermen," the words, "or some person by them authorized for that purpose."

[*Adopted Dec.* 28, 1881.]

**An Ordinance in Amendment of an Ordinance in Relations to Sewers.**

Sections 9 and 10 of Chapter 32 of the Revised City Ordinances are hereby repealed, the same being in relation to house drainage.

Section 12 of Chapter 32 of the Revised City Ordinances is hereby amended by striking out of the first line thereof the words, "and catch-basins."

[*Adopted Dec.* 28, 1881.]

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**An Ordinance in Amendment of an Ordinance in Relation to the Fire Department.**

Chapter 16 of the Revised Ordinances is hereby amended by striking out the second section thereof, and inserting in its place the following:

"SECT. 2. In the month of April, in the year eighteen hundred and eighty-two, there shall be appointed by the Mayor, with the approval of the Board of Aldermen, and the concurrence of the Common Council, — or, in default thereof, afterward, by a concurrent vote of the City Council, either branch acting first, — a chief engineer and three assistant engineers, who shall hold their offices until removed by the City Council, and until others are elected in their places. Whenever a vacancy occurs in either of the offices named herein the same shall be filled forthwith in the same manner as hereinbefore prescribed."

Also, by striking out the fifteenth section, and inserting in its place the following:

"SECT. 15. The Mayor and Alderman shall, in the month of January in the year eighteen hundred and eighty-two, and whenever vacancies occur, appoint the several engine, hose, and hook and ladder companies, whose term of service shall continue until the respective appointees are removed by the Mayor and Aldermen, and others appointed in their places; and the members of said companies shall receive a warrant substantially like that prescribed for engineers."

[*Adopted Dec.* 28, 1881.]

**An Ordinance in Amendment of an Ordinance in Relation to Salaries.**

Section 1 of Chapter 27 of the Revised Ordinances is so amended that from the first day of February, 1882, the compensation of members of the Fire Department shall be as follows:

Chief Engineer, per year, twelve hundred dollars.

[*Adopted April* 5, 1882.]

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**An Ordinance in Relation to the Compensation of the Clerk of the Board of Engineers of the Fire Department.**

The compensation of the Clerk of the Board of Engineers of the Fire Department shall be at the rate of twenty-five dollars per annum; such rate to take effect as of Jan. 1, 1882.

[*Adopted April* 5, 1882.]

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**An Ordinance in Amendment of an Ordinance in Relation to Water Works.**

Section 24 of Chapter 39 of the Revised Ordinances is hereby amended by adding after the word "follows," at the end of the second paragraph, the words "*provided, however*, that the charge shall not be less than ten dollars for any one year; and *provided, further*, that when the water used by any one taker shall amount to more than five million gallons in any one year commencing with the first day of July, then the charge shall be at the rate of one cent for each one hundred gallons of the excess over that quantity."

[*Adopted April* 12, 1882.]

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**An Ordinance in Relation to the Salary of the Superintendent of Lamps.**

Chapter 27 of the Revised Ordinances is hereby amended as follows:

The salary of the Superintendent of Lamps shall be five hundred dollars per annum, to date from June 1, 1882.

[*Adopted June* 28, 1882.]

**An Ordinance in Amendment of an Ordinance in Relation to Streets.**

Section 25 of Chapter 36 of the revised Ordinances is hereby amended by striking out the entire section, and inserting in place thereof the following:

"The owner or tenant of any land abutting on any street, lane, court, square, or public place, where there is any footway or sidewalk, shall cause the snow falling on said footway or sidewalk in front of his said land, whether from any building or otherwise, to be removed therefrom within twenty-four hours after the same ceases to fall; and shall cause the ice which encumbers such footway or sidewalk to be removed or covered with sand or other suitable substance, so as to make the footway or sidewalk safe and convenient for travel. Any person failing to do so shall be fined not less than two nor more than twenty dollars."

[*Adopted July* 19, 1882.]

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**An Ordinance in Relation to the Boundaries of the Several Wards, and the Number of Members of the Common Council to be elected in each Ward.**

SECTION 1. The boundaries of the several wards shall, until the month of October, in the year eighteen hundred and eighty-seven, continue the same as now established, with the following exceptions:

So much of the territory annexed from the town of Belmont as lies south of a line through the centre of Concord Avenue shall constitute a part of Ward One; and so much of said territory as lies north of such line shall constitute a part of Ward Five.

SECT. 2. The members of the Common Council shall be apportioned as follows: Ward One shall elect FOUR; Ward Two shall elect SIX; Ward Three shall elect FOUR; Ward Four shall elect FOUR; Ward Five shall elect TWO.

[*Adopted Oct.* 25, 1882.]

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**An Ordinance substituting the Words "Third District Court of Eastern Middlesex," for the Words "Police Court."**

Wherever in any ordinance of the city, the words "Police Court" occur, they are hereby stricken out, and the words

"Third District Court of Eastern Middlesex" are hereby inserted in place thereof.

[*Adopted Nov.* 29, 1882.]

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**An Ordinance in Amendment of an Ordinance in Relation to Sewers.**

Section 1 of Chapter 32 of the Revised Ordinances is hereby amended by adding at the end thereof the words:

"Nor until the owner shall have paid to the city, as a charge for entering the public sewers, such a sum of money as the Mayor and Aldermen shall order; said sum to be not less than the amount which would be assessed upon the lands of such owner, upon the basis of the present ordinance in the case of a public sewer, less such an allowance for the cost of the private sewer as the City Engineer shall certify to the Mayor and Aldermen is reasonable."

[*Adopted Dec.* 27, 1882.]

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**An Ordinance in Amendment of an Ordinance in Relation to the City Physician.**

Chapter 25 of the Revised Ordinances is hereby amended as follows:

By striking out the last twenty words of the first section providing a salary for the City Physician.

Also, by striking out the second section, and inserting in place thereof the following:

"SECT. 2. There shall also be chosen annually, in the month of April, by the Overseers of the Poor, subject to the approval of the Mayor and Aldermen, a physician, to be called the Assistant City Physician, who, under the direction of the Overseers of the Poor, shall act as the almshouse physician, and shall visit and prescribe for the sick poor in the city, outside of the almshouse. His salary shall be fixed by the City Council."

Also, by striking out the word "He," at the beginning of the third section, and inserting in place thereof the words, "The As-

sistant City Physician;" and the word "He," at the beginning of each subsequent section, shall be held to designate the Assistant City Physician only.

Also, by striking out the words "City Council" in the seventh section, and inserting in place thereof the words, "Overseers of the Poor."

Also, by striking out the eighth section.

[*Adopted Dec.* 27, 1882.]

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**An Ordinance in Amendment of an Ordinance in Relation to the Pay of City Laborers.**

Section 11 of Chapter 1 of the Revised Ordinances is hereby amended by adding at the end thereof the words:

"And provided further, that he shall, without action by the committee aforesaid, draw his order for the semi-monthly payment of the wages of the laborers employed in the Street Department; the amounts of such wages to be entered upon pay-rolls which shall be certified as correct by a majority of the Joint Standing Committee on Roads and Bridges; such amounts to be within the appropriation to which the same shall be charge able."

[*Adopted Feb.* 19, 1883.]

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**An Ordinance in Relation to the Salaries of Certain City Officers.**

SECTION 1. From and after the first day of February of the current year the salaries of the City Officers hereinafter named shall be as follows:

| | |
|---|---|
| Auditor of Accounts . . . . . | $1,800 per year. |
| Treasurer of the Commissioners of the Sinking Funds . . . . . | 300 " |
| Clerk of Committees . . . . . | 2,000 " |

SECT. 2. All Ordinances and parts of Ordinances inconsistent herewith are hereby repealed.

[*Adopted March* 19, 1883.]

**An Ordinance in Relation to the Compensation of Members of the Fire Department.**

SECTION 1. From and after February 1, 1883, the compensation of the members of the Fire Department shall be as follows:

CALL MEN.

| | |
|---|---|
| Assistant Engineers, each . . . . . | $325 per year. |
| Foremen of Engine and Hook and Ladder Companies . . . . . | 194 " |
| Assistant Foremen of Engine and Hook and Ladder Companies . . . . . | 183 " |
| Members of Engine and Hook and Ladder Companies . . . . . | 172 " |

PERMANENT MEN.

| | |
|---|---|
| Engineers of Steam Fire-Engines . . . . . | $90 per month. |
| Drivers of Steam Fire-Engines, Hook and Ladder Trucks, and Chemical Engine . . . . | 75 " |
| Engineer of Chemical Engine . . . . . | 75 " |
| Fire-Alarm Telegraph Operator . . . . . | 90 " |
| Assistant " " . . . . . | 75 " |

SECT. 2. All Ordinances and parts of Ordinances inconsistent herewith are hereby repealed.

[*Adopted March* 28, 1883.]

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**An Ordinance in Relation to the Salary of the City Messenger.**

From and after the first day of April of the current year the salary of the City Messenger shall be at the rate of fifteen hundred dollars a year.

[*Adopted April* 9, 1883.]

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**An Ordinance in Amendment of an Ordinance in Relation to Water Works.**

Section 25 of Chapter 39 of the Revised Ordinances is hereby amended, by striking out the word "fifteen" in the second paragraph, and inserting in place thereof the word "ten;" also, by inserting after the word "hydrant" the words "or reservoir."

[*Adopted April* 9, 1883.]

**An Ordinance in Amendment of an Ordinance in Relation to Accounts and Finance.**

Section 1 of Chapter 1 of the Revised City Ordinances, relating to the Auditor of Accounts, is hereby amended by inserting after the end of the first sentence, the following:

"He shall give a bond in such a form as the City Solicitor shall approve, with sufficient sureties, to be approved by the Mayor and Aldermen, in a sum not less than ten thousand dollars, which bond shall be executed, approved, and delivered before he enters upon the duties of his office, and within ten days after his election. Should he fail to give such bond within the time herein required, the election shall be void, and a new election shall be had forthwith. In case of the death or insolvency of any of the sureties on any bond so given, the Auditor shall immediately give a new bond, with sufficient sureties, as hereinbefore provided; and, if he fails to give such new bond within a reasonable time after notice to do so, it shall be sufficient cause for his removal from office.

"*Provided, however*, that the first bond herein required shall be filed within ten days from the passage of this Ordinance."

[*Adopted April* 9, 1883.]

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**An Ordinance in Relation to Uniforms for the Permanent Men of the Fire Department.**

SECTION 1. The permanent men of the Fire Department shall be required to furnish themselves with a suitable uniform, the same to consist of a cap, overcoat, undercoat, vest and pantaloons, and to be of such materials, quality of goods and pattern, as the Mayor and Aldermen may prescribe.

SECT. 2. This Ordinance shall take effect upon the first day of May, 1883.

[*Adopted April* 28, 1883.]

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**An Ordinance in Relation to the Compensation of Members of the Police Force.**

From and after the 25th day of March, 1883, the compensation of the members of the Police Force hereinafter named shall be as follows:

| | |
|---|---|
| Captains . . . . . | $1,150 per year. |
| Sergeants . . . . . | $2.87½ per day. |
| Policemen, after two years of service . . | $2.75 per day. |
| Policemen, until two years of service . . | $2.50 per day. |

[*Adopted May* 14, 1883.]

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**An Ordinance Repealing an Ordinance in Relation to the Salary of the City Physician.**

An Ordinance entitled "An Ordinance in Relation to the Salary of the City Physician," adopted March 3d, 1880, is hereby repealed.

[*Adopted June* 11, 1883.]

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**An Ordinance in Amendment of an Ordinance in Relation to Accounts and Finance.**

Section 11 of Chapter 1 of the Revised Ordinances, as amended February 19th, 1883, is hereby further amended by adding at the end of such amendment the words:

"And *provided further*, that he shall, without action of the committee aforesaid, draw his order for the semi-monthly payment of the wages of the laborers employed upon the city ledge and house-offal wagons, and in the sewer department, the amounts of such wages to be entered upon pay-rolls, which shall be certified as correct, as follows: those of the laborers upon the city ledge and house-offal wagons, by a majority of the board of overseers of the poor, and those of the laborers in the sewer department by a majority of the committee on sewers, such amounts to be within the appropriation to which the same shall be chargeable.

[*Adopted July* 30, 1883,]

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**An Ordinance in Relation to the Salaries of the Assistant Assessors.**

The salaries of the Assistant Assessors shall be at the rate of four dollars per day, for services rendered; the same to take effect as of the year 1883.

[*Adopted Sept.* 17, 1883.]

**An Ordinance in Amendment of an Ordinance in Relation to Water Works.**

Chapter 39 of the Revised Ordinances is hereby amended as follows:

In Section 13, by striking out the word "June" and by inserting in place thereof the word "April."

In Section 15, by striking out the word "July" in the second and fourth lines, and inserting in place thereof the word "May."

In Section 16, by striking out the word "August" in the seventh line and inserting in place thereof the word "June."

In Section 20, Regulation 6, by inserting after the word "registrar" the words "while the person liable for the water-rates is in possession of the premises."

In Section 24, in the list of rates under the head of Dwelling Houses, by striking out the figures $22.00. $30.00 and $35.00, and inserting in place thereof, respectively, the figures $18.00, $26.00 and $31.00.

[*Adopted April* 9, 1884.]

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**An Ordinance in Relation to the Salary of the Inspector of Milk.**

The salary of the Inspector of Milk shall be four hundred and twenty-five dollars per annum, the same to date from the first day of January, 1884.

[*Adopted April* 28, 1884.]

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**An Ordinance in Amendment of an Ordinance in Relation to Accounts and Finance.**

Section 11 of Chapter 1 of the Revised Ordinances is hereby amended by striking out the amendments thereto respectively adopted Feb. 19, 1883, and July 30, 1883, and inserting in place thereof the following:

"And provided also that he shall, without action by the committee aforesaid, draw his order for the semi-monthly payment of the wages of all laborers employed in the various city department,—the amount of such wages to be entered in detail upon pay-rolls, which shall be properly certified by the board or committee, respectively, having control of the appropriation to which such amounts shall be chargeable."

[*Adopted May* 19, 1884.]

**An Ordinance in Amendment of an Ordinance in Relation to Water Works.**

Section 3 of Chapter 39 of the Revised Ordinances is hereby amended, by inserting in the eighth line thereof, after the word "Cambridge," the words "also by an Act of the said Legislature approved on the twenty-first day of May, A. D. 1884, entitled 'an Act to provide a further supply of water for the City of Cambridge.'"

[*Adopted July* 14, 1884.]

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**An Ordinance in Relation to the Salary of the Mayor.**

From and after the first day of January, 1885, the salary of the Mayor shall be twenty-five hundred dollars per annum.

[*Adopted Sept.* 10, 1884.]

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**An Ordinance in Relation to the Salary of the City Engineer.**

The salary of the City Engineer shall be three thousand dollars per annum,— to date from August 1, 1884.

[*Adopted Sept.* 10, 1884.]

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**An Ordinance in Relation to the Salary of the Superintendent of Lamps.**

The salary of the Superintendent of Lamps shall be at the rate of six hundred and fifty dollars per annum, the same to take effect on the first day of September, 1884.

[*Adopted Nov.* 17, 1884.]

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**An Ordinance in Amendment of an Ordinance in Relation to Water Works.**

Section 24 of Chapter 39 of the Revised Ordinances is hereby amended by inserting after the word "power" in the first line of the last paragraph the words "to prevent the erection of yard hydrants, and;" — so that the section will read, "The Board shall have power to prevent the erection of yard hydrants, and to establish such regulations as they may deem expedient," etc.

[*Adopted Dec.* 22, 1884.]

**An Ordinance in Amendment of an Ordinance in Relation to Water Works.**

Section 25 of Chapter 39 of the Revised Ordinances is hereby amended by striking out the words "and a half" from the third line of the second paragraph; making the charge for water used for watering streets at the rate of one cent per hundred gallons.

[*Adopted Feb.* 17, 1885.]

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**An Ordinance in Amendment of an Ordinance in Relation to Water Works.**

Section 24 of Chapter 39 of the Revised Ordinances is hereby amended by striking out, at the end of the list of Water Rates, the words:

"Building Purposes: For every cask of lime and cement used, six cents."

[*Adopted March* 24, 1885.]

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**An Ordinance in Relation to the Compensation of the Board of Assessors.**

The compensation of the Board of Assessors shall be forty-five hundred dollars per year, to date from April 1, 1885, — and they shall devote their entire time to the duties of their office.

[*Adopted May* 8, 1885.]

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**An Ordinance in Amendment of an Ordinance in Relation to Streets.**

Section 33 of Chapter 36 of the Revised Ordinances is hereby amended by striking out the words "Chairman of the Committee" in the fifth line of said section, and inserting in place thereof the words "City Treasurer."

[*Adopted May* 8, 1885.]

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**An Ordinance in Amendment of an Ordinance in Relation to Accounts and Finance.**

Section 11 of Chapter 1 of the Revised Ordinances, as amended July 30, 1883, is hereby further amended by adding the following paragraphs:

"And *provided further*, that he shall without action by the Committee aforesaid, draw his order for the payment of the sums allowed as State and military aid, said sums to be entered upon pay-rolls, which shall be certified as correct by a majority of the Committee on Soldiers' Aid, and to be within the appropriation for State Aid.

"The City Treasurer shall pay all employés of the city, whose names are borne upon pay-rolls, either in person at the City Hall, or by sending a clerk or paymaster to pay such persons at the place where they are employed. He may also make the necessary arrangements for the transportation of such clerk or paymaster to the place aforesaid. The Mayor is hereby authorized to detail a police officer to accompany such paymaster while in the performance of his duty."

[*Adopted May* 19, 1885.]

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**An Ordinance in Relation to the Salary of the Assistant City Physician.**

The salary of the Assistant City Physician shall be twelve hundred and fifty dollars a year, the same to take effect on the first day of July, 1885.

[*Adopted July* 14, 1885.]

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**An Ordinance in Relation to the Salary of the Chief Engineer of the Fire Department.**

From and after the first day of June, 1885, the salary of the Chief Engineer of the Fire Department shall be at the rate of fifteen hundred dollars a year.

[*Adopted July* 14, 1885.]

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**An Ordinance in Relation to the Salary of the Clerk of the Common Council.**

From and after the first day of January in the year 1886, the salary of the Clerk of the Common Council, shall be at the rate of three hundred dollars a year.

[*Adopted Oct.* 20, 1885.]

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**An Ordinance in Amendment of an Ordinance in Relation to Accounts and Finance.**

Section 11 of Chapter 1 of the Revised Ordinances, as amended May 19, 1884, is hereby amended by inserting after

the word "department," in the last paragraph of said Section, the words "and also the members of the Police Force and Fire Department, and the Janitors of Public Buildings."

[*Adopted Nov.* 10, 1885.]

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**An Ordinance in Amendment of an Ordinance in Relation to Accounts and Finance.**

Section 8 of Chapter 1 of the Revised Ordinances is hereby amended by adding the following paragraphs:

"*Provided*, That no Committee, either of the Board of Aldermen or of the City Council, authorized to purchase materials or supplies, or to contract for labor to be performed, shall have the power to expend more than three hundred dollars for any one specific purpose, whether settlement for the same shall be made in one or more payments, unless specially empowered to make such expenditure by an order of the City Council, or of the Board of Aldermen in cases where that Board has sole jurisdiction.

"Every Committee authorized to purchase or contract to an amount exceeding the sum of three hundred dollars, shall, unless otherwise directed, advertise for proposals to furnish materials, supplies, or labor, and shall award the contract therefor to the lowest responsible bidder, unless such Committee shall deem it advisable to reject all proposals received and advertise anew."

[*Adopted Dec.* 16, 1885.]

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**An Ordinance in Amendment of an Ordinacne in Relation to Streets.**

Section 14 of Chapter 36 of the Revised Ordinances, is hereby amended by adding at the end thereof, the following paragraphs:

"No person shall place upon any sidewalk any board or plank walk, without first obtaining a written license from the Mayor and Aldermen, or some person by them authorized for that purpose; and no walk laid under authority of such license shall be less than three feet in width, and the same shall be in sections of not more than twelve feet in length. The material used for such walks shall be of spruce, of not less than one and a quarter, nor more than two inches in thickness, and shall be planed to a uniform thickness upon the under side, and cross-tied at the

length of every three feet, with two by six-inch pine. Such walks shall be constructed in accordance with a plan in the office of the City Engineer, and shall be subject to the approval of the Standing Committee on Roads and Bridges of the Board of Aldermen, and the Superintendent of Streets, and may be removed by them whenever in their judgment they may deem that the public safety and convenience require such removal.

"*Provided*, That exceptions may be made in relation to the requirement concerning the width of plank walks, in cases where the sidewalk is too narrow to admit of the prescribed width, and in such cases the Standing Committee on Roads and Bridges, of the Board of Aldermen, shall be authorized to make and allow any necessary change.

"Plank walks, authorized as hereinbefore provided, shall be laid and kept in proper condition by the respective owners thereof, and the same shall be taken up by such owners during the spring months whenever the Committee aforesaid and the Superintendent of Streets shall so direct."

[*Adopted Dec.* 16, 1885.]

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**An Ordinance in Amendment of an Ordinance in relation to Water Works.**

Section 19 of Chapter 39 of the Revised Ordinances is hereby amended by striking out the entire section and inserting in place thereof the following:

"SECT. 19. No person shall injure any public pipe, reservoir or fire hydrant connected with the Water Works or shall break and enter the same, or draw off or cause to be removed, any of the water therefrom; or shall turn on or off the water in any such water pipe, reservoir or fire hydrant or shall make any opening or connection with such pipe, reservoir or fire hydrant, or remove the cover of any hydrant, except in case of fire, without the license or permit of the Water Board or by authority of the Mayor and Aldermen,—and then under the direction of the Superintendent of the Water Works, who shall provide competent men to perform the same; and the expense thereof shall be charged to the person or department applying for such license or permit."

[*Adopted Dec.* 23, 1885.]

**An Ordinance in Amendment of an Ordinance in Relation to the Cambridge Cemetery.**

Sections 1 and 2 of Chapter 5 of the Revised Ordinances are hereby amended, by striking therefrom the word "*six*" wherever the same occurs, and inserting in its place the word "*four.*"

[*Adopted Dec.* 30, 1885.]

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**An Ordinance in Amendment of an Ordinance in Relation to Streets.**

Section 16 of Chapter 36 of the Revised Ordinances is hereby amended by adding at the end thereof the following:

"Whenever any department of the City or any corporation, or person, shall lawfully make or authorize to be made, any opening, or cause any obstruction, in any street, lane, alley, sidewalk, or other public place, such department, corporation, or person, shall within one week from the time of making such opening or causing such obstruction, give notice thereof, in writing, to the Superintendent of Streets, and shall be held responsible for any damages that may result from such opening or obstruction for a period of six months from the time of making the same."

[*Adopted Dec.* 30, 1885.]

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**An Ordinance in Amendment of an Ordinance in Relation to Accounts and Finanee.**

Section 25 of Chapter 1 of the Revised Ordinances is hereby amended by striking out the word "two" in the third line, and inserting in place thereof the word "three."

[*Adopted Dec.* 30, 1885.]

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**An Ordinance in Amendment of an Ordinance in Relation to Accounts and Finance.**

Chapter 1 of the Revised Ordinances is hereby amended by striking out the ninth, tenth, eleventh, and twenty-first sections of said chapter, and inserting in place of said sections, respectively, the following:

SECT. 9. The pay-rolls of city employés shall be made up to the first and fifteenth days of each month; and the pay-days at City Hall shall be on the tenth and twenty-fifth days of each month, except that in case either of said days occurs

on Sunday, or upon a legal holiday, then the next succeeding day shall be pay-day; and the several boards and committees above mentioned shall hold regular meetings on or before the fifth and twentieth days of each month for the examination and approval of bills. They shall keep a record of all contracts and obligations entered into by them, the dates of the same, with the names of the parties and the amounts of such contracts and obligations, when the same are known, and also of the names of the persons whose bills are approved, and of the dates and amounts of said bills. A majority of each of said boards and committees, except the school committee, shall certify, by their signatures upon such bills, their approval of the same, and pass them to the auditor on or before the mornings of the sixth and twenty-first days of each month. All bills approved by the school committee shall be certified by the secretary, and at least three members of that board. No bill shall be approved by any board or committee except at a meeting of which all the members have been notified, and at which there is a quorum present.

The chairman of the several committees shall furnish to the Committee on Accounts semi-monthly statements, as far as practicable, of the amount of all outstanding contracts and bills chargeable to their several appropriations, which statements shall be passed to the Auditor with the bills, and addressed to the Committee on Accounts.

### COMMITTEE ON ACCOUNTS.

SECT. 10. There shall be appointed in the month of January annually a joint standing committee on accounts, to consist of two members of the board of aldermen and three members of the common council; which committee shall meet at least two days before each of the pay-days mentioned in the preceding section, and carefully examine all accounts and claims against the city which shall be laid before them by the auditor, and after comparing them with his record, shall allow and pass the same if found to be properly entered; but no bill shall be allowed or passed by said committee unless the same shall bear the written signatures of a majority of the board or committee (other than the school committee of which the certificate of the secretary

and three members at least shall be required) authorized on behalf of the city to make the contract, or cause the expenditure to be made; and when the committee on accounts has any doubt concerning the propriety of such bill or account, it shall return the same to the board or committee approving for explanation; and if not satisfactorily explained it shall be exhibited to the city council, with the objections, at the next meeting thereof for its consideration and final decision.

The committee on accounts shall direct the auditor and the treasurer and collector as to the manner in which the books, records, accounts and papers belonging to their several departments shall be kept.

PAYMENT OF MONEY.

SECT. 11. The Mayor is hereby authorized to draw orders on the Treasurer for the payment of all accounts and claims allowed and certified by the committee on accounts, as provided in the preceding sections, and no other; *provided, however*, he may, without action by the committee on accounts draw his order to pay any sum by way of advance on contracts made, or on work begun and not completed, upon being satisfied of the necessity therefor by a certificate signed by a majority of the committee controlling the expenditure, within the sum specially appropriated therefor by the City Council, or upon the express order of the City Council.

SECT. 21. Heads of departments shall furnish semi-monthly pay-rolls of the employés in their respective departments, stating the name and residence of each employé, the time for which payment is to be made, the rate of wages, and the amount due him, and submit the same for approval to the proper board or committee named in section 7 of this chapter, on or before the fifth and twentieth days of each month; and the Treasurer shall in person, or by his clerk, make payment to such employé, his authorized agent or attorney; shall take therefor the receipt of no other person than such employé, agent or attorney. The City Treasurer shall pay all employés of the city whose names are borne upon pay-rolls, either in person at City Hall or by sending a clerk or pay-master to pay such persons at the place where they are employed. He may also make the necessary arrangements for the transportation of such clerk or pay-master to the place as aforesaid. The Mayor is hereby authorized to

detail a police officer to accompany such pay-master while in the performance of his duty.

All ordinances and parts of ordinances inconsistent herewith are hereby repealed.

[*Adopted Dec.* 30, 1885.]

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**An Ordinance in Amendment of an Ordinance in Relation to Accounts and Finance.**

The Ordinance passed December 30, 1885, in amendment of chapter 1 of the Revised Ordinances is hereby amended by striking out the words, "Sect. 9. The pay-rolls of city employés shall be made up to the first and fifteenth days of each month," and inserting in place thereof the following words: "Sect. 9. The pay-rolls of the city employés shall be made up the first and sixteenth days of each month."

[*Adopted Jan.* 26, 1886.]

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**An Ordinance in Amendment of the Ordinance in Relation to Accounts and Finance.**

The Ordinance in amendment of "An Ordinance in relation to Accounts and Finance," passed December 16, 1885, shall not be held to apply to the consumption of Water or Gas, nor to contracts made with such laborers or other persons as are ordinarily employed in the various departments, in the performance of the regular work or labor thereof, whether such contracts be by the day, month or year.

[*Adopted March* 10, 1886.]

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**An Ordinance in Relation to the Compensation of the Harbor Master.**

The salary of the Harbor Master shall be at the rate of one hundred dollars a year, beginning on the first day of January in the current year.

[*Adopted April* 14, 1886.]

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***An Ordinance in Relation to the Boundaries of the Several Wards, and the Number of Members of the Common Council to be elected in each Ward.**

SECTION 1. The boundaries of the several wards shall, until the first day of May, in the year eighteen hundred and ninety-

* Section 1 repealed by Chapter 283 of the Acts of 1886.

six, continue the same as established by ordinance adopted on the twenty-fifth day of October, eighteen hundred and eighty-two, with the following exceptions:

So much of the territory of Ward Two as lies northerly of Broad Canal and easterly of a line through the centre of the Boston & Albany branch railroad shall constitute a part of Ward Three, and so much of the territory of Ward Three as lies westerly of such line shall constitute a part of Ward Two; making the centre of said railroad the boundary line between said wards from Broad Canal to the boundary line between Cambridge and Somerville.

SECT. 2. The members of the Common Council shall be apportioned as follows: Ward One shall elect FOUR; Ward Two shall elect FIVE; Ward Three shall elect FOUR; Ward Four shall elect FIVE; Ward Five shall elect TWO.

[*Adopted May* 26, 1886.]

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**An Ordinance in Amendment of an Ordinance in Relation to Sewers.**

Section 4 of Chapter 32 of the Revised Ordinances is hereby amended by striking out the last clause of said Section, and inserting in place thereof the following:

"Provided, however, that the Superintendent of Streets shall keep the entrances to the catch-basins open and clear of ice in cold weather, so as to permit the flow of surface water into them."

[*Adopted June* 3, 1886.]

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**An Ordinance in Amendment of an Ordinance in Relation to City Scales and Weighers.**

Section 5 of Chapter 29 of the Revised Ordinances is hereby amended by inserting after the word "cents" in the eighth line the words "*provided further* that the fees for weighing stone shall be ten cents for a single load, and fifteen cents for a double load."

As amended the section will stand as follows:

SECTION 5. The fees for weighing to be received by the weighers, and by them paid to the Treasurer, as provided by the City Ordinances, shall be as follows, to wit: One cent and a

half for every hundred pounds of hay or straw; one-half of a cent for every hundred pounds of anthracite or other coal; and one cent for every hundred pounds of any other article: *provided, however*, that the fees for weighing any article other than hay or straw shall never be less than ten cents; and *provided further* that the fees for weighing stone shall be ten cents for a single load, and fifteen cents for a double load. The vehicle containing the same, and other tare, shall be weighed without charge, and no fees shall be taken for weighing done on account of the city.

[*Adopted Oct.* 6, 1886.]

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**An Ordinance in Amendment of an Ordinance in Relation to the Compensation of the Call Members of the Fire Department.**

From and after the first day of January, 1887, the compensation of the call members of the Fire Department shall be as follows:

| | | |
|---|---|---|
| Foremen of Companies . . . . . | $220 00 | per year. |
| Assistant Foremen of Companies . . . . | 210 00 | " |
| Members of Companies . . . . . | 200 00 | " |

All Ordinances and parts of Ordinances inconsistent herewith are hereby repealed.

[*Adopted Oct.* 6, 1886.]

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**An Ordinance in Amendment of an Ordinance in Relation to Sinking Funds.**

Section 3 of Chapter 34 of the Revised Ordinances, in relation to sinking funds, is hereby amended by inserting in the fourth line before the word "twenty" the words "not exceeding."

Also, in the seventh line by striking out all after the word "issued."

As amended this section will stand as follows:

SECTION 3. All loans for public buildings, and lands therefor, for coustructing and improving bridges, for taking, raising, and improving low lands, for laying out and paving streets, purchasing public lands and widening streets, shall be negotiated for ten years. All loans for constructing sewers and drains shall

be negotiated for not exceeding twenty years. Bonds issued for such loans shall bear upon the face the purpose for which they were issued.

[*Adopted Nov.* 27, 1886.]

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**An Ordinance in Relation to Weekly Payments.**

Chapter 1 of the Revised Ordinances is hereby amended by striking out the ninth, tenth, eleventh and twenty-first sections of said chapter, and inserting in place of said sections, respectively the following:

SECTION 9. The pay-rolls of city employés shall be made up each Saturday for the whole week, including that day, and the pay-days at City Hall for such employés shall be every Thursday, except in case such day occurs upon a legal holiday, when the next preceding day shall be the pay-day. Other pay-rolls shall be made up to include the last day of each month; and the pay-day for the same and for bills shall be on the tenth of each month, or the day following if such occurs on Sunday or a legal holiday; and the several Boards and Committees above mentioned shall hold regular meetings within the last seven days of each month for the examination and approval of bills, including pay-rolls certified as provided in Section 10 of this ordinance. Said Boards and Committees shall keep a record of all contracts and obligations entered into by them, the dates of the same, with the names of the parties and the amounts of such contracts and obligations, when the same are known; and also of the names of the persons whose bills are approved, and of the dates and amounts of said bills. A majority of each of said Boards and Committees except the School Committee, shall certify, by their signatures upon such bills, their approval of the same, and pass them to the Auditor on or before the morning of the third day of each month. All bills approved by the School Committee shall be certified by the Secretary, and at least three members of that Board. No bill shall be approved by any board or committee except at a meeting of which all the members have been notified, and at which there is a quorum present.

The chairmen of the several committees shall furnish for the Committee on Accounts monthly statements, as far as practicable, of the amount of all outstanding contracts and bills charge-

able to their several appropriations, which statements shall be passed to the Auditor with the bills, and addressed to the Committee on Acconnts.

### COMMITTEE ON ACCOUNTS.

SECT. 10. There shall be appointed in the month of January annually, a Joint Standing Committee on Accounts, to consist of two members of the Board of Aldermen and three members of the Common Council; which Committee shall meet on or before the eighth day of each month, and carefully examine all accounts and claims against the city which shall be laid before them by the Auditor, and after comparing them with his record, shall allow and pass the same if found to be properly entered; but no bill shall be allowed or passed by said Committee unless the same shall bear the written signature of a majority of the Board or Committee (other than the School Committee, of which the certificate of the Secretary and three members at least shall be required), authorized on behalf of the city to make the contract, or cause the expenditures to be made, except the weekly pay-rolls, which shall bear the certificate of the head of the proper department as provided for by amendment to Section 11 of this Chapter; and when the Committee on Accounts has any doubt concerning the propriety or correctness of such bill or account, it shall return the same for explanation to the Board or Committee approving, when, if it be not satisfactorily explained, it shall, together with the objections thereto, be exhibited to the City Council at the next meeting thereof, for consideration and final decision.

The Committee on Accounts shall direct the Auditor, the Treasurer and Collector, and other officers of the city, and heads of departments, as to the manner in which the books, records, accounts and papers belonging to their several departments shall be kept.

### PAYMENT OF MONEY.

SECT, 11. The Mayor is hereby authorized to draw orders on the Treasurer for the payment of all accounts and claims allowed and certified by the Committee on Accounts as provided in the preceding sections and no other; *provided*, *however*, he may

without action by the Committee on Accounts draw his order to pay any sum not exceeding three-fourths of the amount then due, by way of advance on contracts made, or on work begun and not completed, upon being satisfied of the necessity therefor by a certificate signed by a majority of the committee controlling the expenditure, within the sum especially appropriated therefor by the City Council, or to draw his order for any sum upon the express order of the City Council.

And provided further that he shall, without action by either of said committees, draw his order for the weekly payment of the wages of such employés as are entitled by law to be paid weekly; the amounts of such wages as fixed by the committees having charge of the several appropriations to be entered upon pay-rolls which shall be certified to as correct by the heads of the respective departments; all such amounts to be within the appropriation to which the same shall be chargeable.

SECT. 21. Heads of departments shall furnish weekly pay-rolls of such employés in their respective departments as are entitled by law to be paid weekly, and shall furnish monthly pay-rolls for all other employés, stating the name and residence of each employé, the time for which payment is to be made, the rate of wages, as fixed by the Committees having charge of the several appropriations, and the amount due him, and the Treasurer shall in person, or by his clerk, make payment to such employé, his authorized agent or attorney, and shall take therefor the receipt of no other person than such employé, agent or attorney. The City Treasurer shall pay all employés of the city whose names are borne upon pay-rolls, either in person at City Hall or by sending a clerk or pay-master to pay such persons at the place where they are employed. He may also make the necessary arrangements for the transportation of such clerk or pay-master to the place as aforesaid. The Mayor is hereby authorized to detail a police officer to accompany such pay-master while in the performance of his duty.

All Ordinances and parts of Ordinances inconsistent herewith are hereby repealed.

[*Adopted Dec.* 1, 1886.]

**An Ordinance in Relation to the Salaries of the Assistant Engineers of the Fire Department.**

From and after the first day of January, 1887, the salaries of the Assistant Engineers of the Fire Department, shall be at the rate of Three Hundred and Seventy-five Dollars per annum, each.

[*Adopted Dec.* 9, 1886.]

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**An Ordinance in Amendment of an Ordinance in Relation to Streets.**

Section 21 of Chapter 36 of the Revised Ordinances is hereby amended by adding at the end thereof the following:

"No person shall deposit in any street, lane or alley, except as hereinafter provided, any dead shrubs or trees, trimmings of shrubs or trees, earth from cellars, or any similar rubbish, unless the same shall be immediately removed therefrom, at the expense of the owner, or other person making such deposit."

*Provided*, that during the months of April and October in each year, owners or occupants of premises may, on twenty-four hours' notice to the Superintendent of Streets, obtain the removal of such dead shrubs and trees, or trimmings of shrubs and trees, as may have accumulated therein, the same to be deposited in the street against the sidewalk adjoining said premises.

Whoever desires the removal of ashes and other house dirt, not including house-offal, shall cause the same to be put in suitable boxes or barrels, and set upon the sidewalk adjoining his premises, and the Superintendent of Streets shall cause such removal to be made at least once in each week, on stated days for different portions of the city, but such boxes or barrels shall not be placed upon any sidewalk so as unnecessarily to prevent the convenient use thereof by foot passengers. Wherever there is a convenient driveway into a yard connected with any dwelling-house, the Superintendent of Streets may at his convenience and upon reasonable notice, cause the city teams to be driven into such yard, and to remove therefrom the ashes and rubbish before mentioned that may be accumulated therein, at the times hereinbefore specified.

Any person having or leaving after dark any such ashes, rubbish or other refuse on any sidewalk, street, lane or alley, shall cause a lighted lantern to be kept thereon during the night.

Whoever shall be convicted of wilfully and maliciously tipping over and spilling out the contents of any boxes or barrels set upon the sidewalk in accordance with the provisions of this ordinance, shall be liable to a fine of not exceeding twenty dollars.

[*Adopted Dec.* 22, 1886.]

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**An Ordinance in Amendment of "an Ordinance in Relation to Weekly Payments."**

The Ordinance in relation to weekly payments adopted Dec. 1, 1886, is hereby amended by adding at the end of Section 11 the following words:

"And provided further that he shall, without action by the Committee on Accounts, draw his order for the payment of the salaries of the teachers of the public schools, and the sums due for State and Military aid; the amounts of such salaries to be entered upon pay-rolls which shall be certified to be correct by the School Committee, and the amounts of such sums for State and Military Aid to be entered upon pay-rolls which shall be certified to be correct by the Committee on Soldiers' Aid, all in the manner prescribed in Section 10; such amounts to be within the appropriation to which the same shall be chargeable."

[*Adopted Dec.* 29, 1886.]

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**An Ordinance in Amendment of an Ordinance in Relation to Accounts and Finance. And an Ordinance in Relation to Fees of City Officers.**

Section 6, of Chapter 1 of the revised Ordinances is hereby amended by inserting after the word "description" in the seventh line the words: *He shall pay over to the Treasurer daily all moneys received by him on account of licenses or fees of any description.*

Section 10, of the amended Ordinance approved December 1, 1886, is hereby amended as follows: At the end of said section add the words — *and at the end of each financial year said Committee shall make a report to the City Council of the condition of all of said accounts and the manner in which they have been kept during the year just closed.*

Erase Section 13, of Chapter 1, and substitute therefor the following:

SECTION 13. The various boards and city officers, who shall in their official capacity, receive any money on behalf of the city, whether for payment of fees for services rendered or otherwise, shall enter in a book kept for the purpose, a detailed record of all money so received, and the several purposes for which said money was paid, which book shall at all times be open to the inspection of the Committee on Accounts, and all such boards and city officers having offices in City Hall, shall pay to the City Treasurer daily all money so received, and all other boards and city officers shall pay over to said Treasurer weekly all money so received by them. All such boards and city officers shall, before making such payment, make a true return to the Auditor of Accounts, stating the account upon which said moneys were received. All other persons who shall at any time have money in their possession belonging to the city, shall forthwith pay the same to the City Treasurer.

Erase the word "*monthly*" from the seventh line of the third section of the fourteenth chapter and insert in the place thereof the word "*weekly.*"

The section as amended will read as follows:

SECTION 3. All fees, penalties, witness fees, moneys or compensation received by the Chief of Police or any member of the police force, other than the salary fixed by Ordinance, for any services rendered in their official capacity, except moneys or compensation received by them for special services, and except witness fees for testimony in courts without the limits of the city, shall be paid weekly into the City Treasury by the officer receiving the same; and the salary so paid by Ordinance shall be in full for all services rendered by the Chief of Police or any member of the police force, during their respective terms of office.

[*Adopted Dec.* 29, 1886.]

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**An Ordinance in Relation to the Employment of City Laborers.**

No person who is not a resident of Cambridge shall be employed as a laborer in any department of the city; and in the employment of laborers in any department of the city prefer-

ence shall be given to efficient and steady men who have families or minor children dependent upon them for support; *provided*, that no competent and faithful laborer, who is a resident of Cambridge, shall be discharged to make place for another.

[*Adopted Dec.* 29, 1886.]

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**An Ordinance in Relation to the Inspection and Construction of Buildings, adopted December 3, 1885, with Amendments of 1886 incorporated.**

SECTION 1. The mayor and aldermen shall annually, during the month of January, appoint a superintendent of public buildings who shall be *ex officio* inspector of buildings.

He shall be an able and experienced architect, builder, or mechanic, and shall not be employed or engaged in any other business, or be interested in any contract for building or for furnishing materials.

He shall be removable for cause at the pleasure of the mayor and aldermen, and a vacancy may be filled at any time for the unexpired term. He shall receive such compensation for his services as the city council may from time to time determine.

DUTIES OF THE SUPERINTENDENT OF PUBLIC BUILDINGS.

SECT. 2. The said superintendent, under the direction of the committee on public property, shall superintend the construction of all buildings erected by the city, and all repairs upon all city buildings, and see that the conditions of the contracts, and the plans and specifications, if any, are faithfully carried out.

SECT. 3. He shall, under the direction of said committee, have the care and custody of all the buildings belonging to the city; shall keep himself acquainted with their condition; shall employ suitable mechanics to make such alterations or repairs as may be ordered on the same; and in general, shall render such services in relation to such buildings as may be required of him by said committee.

SECT. 4. He shall keep an accurate record of all buildings belonging to the city and lands appurtenant to such buildings, and in the month of December in each year, he shall present to the city council a report in relation to the same, showing their condition and the nature and amount of expenditures that shall have been made upon them during the year next preceding, and

a statement of the nature and extent of the repairs that in his opinion should be made during the next succeeding twelve months, and an estimate of the probable cost of the same.

DUTIES OF THE INSPECTOR.

SECT. 5. In his capacity of inspector of buildings he shall examine all buildings in the course of erection, alteration or repair to ascertain if the ordinances of the city are being complied with, and he may require plans and specifications or a description of any proposed erection or alteration of any building, and shall grant permits for such erection or alteration when the plans and specifications or description are in conformity with the ordinances of the city and the laws of the state; he shall enter upon the premises wherein any fire has occurred to ascertain the origin of the fire, and keep a correct record of the business of the department, including all violations of the city ordinances relating to buildings, and shall submit to the city council in the month of December of each year a report of the department of building inspection for the preceding year.

SECT. 6. Upon being informed that any building is in a dangerous or unsafe condition, from damage by fire or accident, or from any other cause, he shall at once proceed to examine the same, and if in his judgment it is in a dangerous or unsafe condition, he shall forthwith notify in writing the owner, agent, or any person having an interest therein to remove the same, or make it safe and secure, and he shall also notify the board of aldermen of the condition of such building, and shall generally perform such duties as may be required of him by the board of aldermen.

SECT. 7. The inspector shall examine all churches, halls, or other buildings or structures, used, or intended to be used temporarily or permanently, for any public use, and all school-houses or school-rooms, public or private, and buildings used, or intended to be used, for manufacturing purposes, and if he finds that any of said buildings or rooms are deficient in proper facilities of egress in case of fire or accident, either in number, width, construction or arrangement of the entrances, aisles, passageways or stairways, or by reason of inner doors opening inward, or from any other cause whatever arising from the manner of construction, alteration or repair of the premises, he shall at once notify the state inspector of factories and public buildings.

SECT. 8. Whenever it appears to the inspector that, in any of the buildings or structures, or portions thereof, mentioned in the foregoing section, the security of the public is temporarily endangered by the use of combustible stuff or materials; or that benches, chairs, stools, or other obstructions are temporarily placed in the aisles or passageways thereof in such a manner as to prevent free egress in case of fire or accident during the time when the same may be opened to the public; or that benches, chairs or settees are temporarily so arranged as not to afford proper egress in case of fire or accident; or that outer doors opening inward are not kept open when such buildings or structures are used by the public; then, and in either of said cases, the inspector shall notify the person for the time being having charge of the premises, and require such person at once to make the premises safe; and if he refuses or neglects so to do, he shall be liable to a penalty of not less than twenty or more than one hundred dollars for each offence, and the inspector shall remove the obstructions.

SECT. 9. All outer doors of buildings and structures mentioned in Section 7 of this ordinance shall be kept open when such buildings or structures are used by the public, unless such doors open outwards, and except that fly doors opening both ways may be kept closed. All inner doors of such buildings and structures shall be made so as to open outward, and said inspector is hereby authorized to enter any of such buildings or structures at all reasonable hours for the purpose of ascertaining whether or not any of the provisions of this ordinance are being violated.

SECT. 10. Whoever intends to erect, or make alterations in a building of any description, within ten feet of a public street of this city, shall, seven days at least before he proceeds to build, or erect the same, or lay the foundation thereof, or to make the said alterations, or to do any act for carrying into execution his intention to do such things, give to the inspector of buildings, notice in writing of his intention, with the dimensions of the structure proposed, the materials to be used, the number on the street, or the precise location, and the name of the owner or owners of the land, in order that any encroachment or other injury or inconvenience to the public streets, which might otherwise happen may be thereby prevented.

No work except necessary repairs, shall be done upon any wall, structure or building, without a permit from the inspector of buildings.

Every person before proceeding to erect any building, fence, or wall to be placed as specified in the first paragraph of this section shall first apply to the city engineer for the lines and grade of the street, lane, square or alley, upon which he intends to build; and the city engineer shall furnish the same without charge, if in his power to do so.

SECT. 11. The inspector shall not give a permit for the erection or alteration of any building until he has carefully inspected the plans, specifications or descriptions thereof, ascertained that the building has sufficient strength and that the means of ingress and egress are sufficient. A copy of the plans and specifications of every public building hereafter erected shall be deposited in the office of the inspector.

SECT. 12. The inspector shall designate, in every permit for the erection of a new building, the lowest grade at which the floor of the basement story of said building may be laid.

SECT. 13. The foundation walls of all dwelling houses to be hereafter erected shall be constructed of the dimensions, and in the manner following, viz:

For wooden houses not exceeding thirty-five feet in height, from the foundation to the top of the upper floor, said foundation walls, if made of rubble stone, shall be not less than sixteen inches thick at the top, and twenty inches thick at the bottom (the slope to be upon the outside of the wall), and shall be laid in mortar made of at least one part cement to three parts lime mixed with clean sharp sand in the proportions of at least one part of cement and lime to two parts sand; and if made of block stone laid in horizontal courses, or of bricks laid in cement upon stone levellers not less than twenty inches broad and twelve inches thick, said foundation walls shall be not less than sixteen inches thick, or twelve inches thick with buttresses not less than twelve inches wide, as often as once in ten feet, which shall project four inches at the top, and at the bottom a sufficient distance to give a batter of one in ten.

For wooden houses exceeding thirty-five feet in height from the foundation wall to the top of the upper floor, and for brick or stone houses having walls not exceeding twenty-five feet in

height above the foundation, the foundation walls shall be built in all respects the same as described in the preceding paragraph except that they shall be four inches thicker than called for in said paragraph.

The foundation walls of brick, or stone houses having walls exceeding twenty-five feet, and not exceeding forty-five feet in height about the foundation walls, if built of rubble stone, shall be not less than twenty-four inches thick at the top, and thirty inches thick at the bottom, and shall be laid in mortar the same as provided in the second paragraph of this section; and if made of block stone in horizontal courses or of brick laid in cement, upon stone levellers not less than thirty inches broad and twelve inches thick, said foundation walls shall be not less than twenty inches thick.

The foundation walls of all brick or stone houses having exterior walls exceeding forty-five feet in height above said foundation walls, if made of rubble stone, shall be not less than thirty inches thick at the top, and thirty-six inches thick at the bottom, and shall be laid in mortar the same as provided in the second paragraph of this section; and if made of block stone laid in horizontal courses, or of brick laid in cement, upon stone levellers not less than thirty-six inches broad and sixteen inches thick, said foundation walls shall be not less than twenty-four inches thick.

SECT. 14. The foundation walls of all wooden buildings (other than dwelling-houses) hereafter erected with external walls not exceeding thirty-five feet in height above the foundation walls, if made of common stone, shall be not less than twenty inches thick at the top and thirty inches thick at the bottom (the slope to be upon the outside of the wall), and shall be laid in mortar the same as hereinbefore provided for the foundations of dwelling-houses; and if laid of block stone in horizontal courses, or of brick, laid in cement upon stone levellers not less than thirty inches broad and twelve inches thick, they shall be not less than twenty-four inches thick. The foundation walls of all brick buildings of the height and description mentioned in this section, shall be four inches thicker than above stated.

SECT. 15. The foundation walls of all wooden buildings (other than dwelling-houses), hereafter erected with external walls exceeding thirty-five feet in height above the foundation

walls, if made of common stone, shall be not less than twenty-four inches thick at the top and thirty-four inches thick at the bottom, the slope to be upon the outside of the wall; and shall be laid in mortar the same as hereinbefore provided for the foundation walls of dwelling-houses; and if made of block stone laid in horizontal courses, they shall be not less than twenty-eight inches thick. The foundation walls of all brick buildings of the height and description mentioned in this section shall be four inches thicker than above stated. All foundation walls shall be laid at least four inches below the bottom of the cellar.

SECT. 16. Whenever piles are required to be driven for a foundation, except as provided in the next section, they shall be of suitable stock, driven to a firm and solid bearing, and the tops shall be cut off on a level to insure constant immersion. There shall be not less than two rows under all external and party walls, and they shall be spaced not over three feet on centres in the direction of the length of the wall. All piles, except as provided in the next section, shall be capped with block-granite levellers, not less than sixteen inches thick, each stone to have a firm bearing on at least one pile in each row.

SECT. 17. Wooden structures not otherwise described herein for dwellings, manufacturing or business purposes, not exceeding two stories in height, may be built on stone or brick foundations, on piers or posts, each set on a hard bottom, but to a depth of not less than four feet below the surface of the ground, or on piles well driven to a hard bottom, said piers, posts and piles to be spaced not more than eight feet on centres; or on mud-sills, resting on cross-pieces of plank three inches or more in thickness, not less than four feet long and ten inches wide, placed at intervals of not more than ten feet on centres.

### EXTERNAL WALLS.

SECT. 18. The external walls of all brick dwelling-houses hereafter erected, if not more than twelve feet high above the foundation walls, shall be not less than eight inches thick for their entire height; if two stories and not more than twenty-five feet in height above the foundation walls, they shall be not less than twelve inches thick to the top of the second floor, and not less than eight inches thick for the remaining height; and if three stories and more than twenty-five feet in height, they shall

be not less than twelve inches thick to the top of the third floor and not less than eight inches thick for the remaining height.

SECT. 19. The external walls of all brick buildings, other than dwelling-houses to be hereafter erected in this city, if not more than thirty-five feet in height above the foundation walls, shall be not less than sixteen inches thick to the top of the upper floor, or for two-thirds of their height, and not less than twelve inches thick for the remaining height; and if more than thirty-five feet in height, they shall be not less than twenty inches thick to the top of the second floor, or for one-half their height, not less than sixteen inches thick to the top of the third floor, or three-fourths of their height, and not less than twelve inches thick for the remaining height.

Provided, however, that the external walls of brick buildings, not exceeding twenty-five feet in height, and covering an area not exceeding two thousand superficial feet, to be used for stables, or light mechanical purposes may be twelve inches thick.

SECT. 20. No buildings except manufactories, railway stations, stables, churches, school houses, and halls for public assemblies shall hereafter be erected, and no existing building shall hereafter be altered or added to, so that they shall extend in a range or have a frontage of more than fifty feet without at least one brick party-wall, not less than eight inches thick for its entire height, and extending from the bottom of the cellar, or from a foundation wall constructed as provided in section fourteen, to the under side of the roof boarding which shall be laid and be embedded in mortar upon said wall, and no existing building, having a range or frontage of more than fifty feet, shall be converted to a use not excepted by this section, without at least one brick party-wall, constructed as described in this section; *provided*, however, that any single dwelling-house, intended for one family, may be extended more than fifty feet in one direction without such party-wall.

SECT. 21. No wooden building to be used for the purposes of a dwelling-house, shall be built at a less distance than two feet from any other wooden building; and no wooden building heretofore erected and now used for other purposes than a dwelling-house, any wall or portion of a wall of which is within less than two feet of any other wooden building, shall be converted into or used for a dwelling-house without the intervention of a brick

wall, where the united width of the two buildings exceeds forty feet; *provided*, that a wooden ell, not exceeding thirty feet in length, fifteen in width, or an equivalent number of feet in area, and not more than twenty-five feet in height, above the sill of the main building, may be built without the intervention of a brick wall between the said ell and the main building.

SECT. 22. Party-walls of brick in all buildings, other than dwelling-houses, hereafter to be erected in this city with external walls not exceeding thirty-five feet in height, shall be not less than sixteen inches thick to the top of the second floor and not less than twelve inches for the remaining height; and in buildings having external walls exceeding thirty-five feet in height, said party-walls shall be not less than twenty inches thick to the top of the second floor, not less than sixteen inches thick to the top of the third floor, and not less than twelve inches thick for the remaining height.

SECT. 23. No opening or doorway shall be cut through or formed in a party-wall of any building, without a permit from the inspector of buildings, and every such doorway shall have top, bottom and sides of stone, brick or iron, and shall be closed by two doors, or sets of doors, of wrought iron or of wood covered with metal, with an air space between them of at least four inches, and said doors shall be hung in rabbeted iron frames, or in wooden frames entirely covered with metal, or to iron hinges in brick or stone rabbets.

### PIERS AND COLUMNS.

SECT. 24. All piers shall be built of the best quality of good, well-burnt hard brick, laid in cement and sand mortar, and well wet when laid in warm weather. Brick piers under lintels, girders or columns of brick buildings shall have a cap iron at least two inches thick, the full size of the pier. Brick piers and buttresses shall be bonded with through courses, levelled and bedded, each course, and where their foundations rest upon piles, a suffi cient number shall be driven to insure a proper support.

SECT. 25. Every metal column in a brick building shall rest on an iron plate of not less thickness than two inches. Wooden columns supporting girders and floors in such buildings shall rest on inch and a half iron plates with sockets to receive the foot of the columns. Metal columns placed one on the top of another

shall have a plate at the top of each column, with projections on both sides to fit into cap and base of columns, to prevent slipping; and all columns shall have holes bored, where directed by the inspector, into and through the shell at right angles to the shaft, so as to show the thickness of shell. All bearing parts of columns and plates shall be turned or planed to true surfaces.

### GRADE OF CELLARS AND BASEMENTS.

SECT. 26. No cellar or basement cellar of any building shall be constructed below the grade of thirteen feet above mean low water; *provided, however*, that the Board of Aldermen may, by license, subject to revocation at any time by them, authorize cellars or basement cellars to be constructed in buildings, no part of which is to be used as a dwelling, so much below said grade as they may designate in such license.

SECT. 27. All buildings built upon filled or made land shall have a bed of concrete, of hydraulic cement and gravel, or tar and gravel, or asphalt, not less than two inches in thickness, spread over the cellar bottom, or shall be paved with brick laid in cement throughout the whole extent of the building; and where there is a basement floor over the cellar bottom, with an air space between the concrete and said floor, the air space shall be properly ventilated.

### CONDUCTING WATER FROM ROOFS OF BUILDINGS.

SECT. 28. All buildings hereafter erected within eight feet of any street or travelled way, shall be provided with suitable leaders for conducting the water from the roof to the ground, and in no case shall such water be allowed to flow upon or across the surface of the sidewalk to the street, gutter or sewer.

### BONDING OF WALLS.

SECT. 29. In every brick wall in buildings hereafter erected, every ninth course of brick shall be a heading course, except in walls built with some bond in which as much as every ninth course is a heading course, and except where walls are faced with face-brick, in which case every ninth course shall be bonded with Flemish headers, or by cutting the course of the face-brick, and putting in diagonal headers behind the same, or by splitting face-brick in half and backing the same by a continuous row of headers. The front, rear, side, end and party-walls

of all brick buildings hereafter erected shall be anchored to each other every ten feet in their height by tie-anchors, made of at least one and a quarter inch by three-eighths of an inch wrought iron.

All walls of a brick building, on which the ends of beams rest, shall be anchored at each tier of beams, at intervals of not more than ten feet apart, with good strong, wrought-iron anchors at least three-eighths inch by one and one-quarter inch, well built into the walls and fastened at the top of the beams; and where the beams are supported by girders, the ends of the beams resting on the girders shall be butted together, end to end, and strapped by wrought-iron straps or tie-irons, at the same distances apart, and in the same beams as the wall anchors, and shall be well fastened.

### TIMBERING OF FLOORS.

SECT. 30. All floors shall be constructed to bear a safe weight per superficial foot, exclusive of materials, as follows: For dwellings, tenements, or lodging houses, one hundred pounds; for buildings for light mechanical purposes, and for public buildings, one hundred and fifty pounds; for storehouses, warehouses, machine shops, armories, drill rooms and riding schools, not less than two hundred and fifty pounds. These requirements shall apply to all alterations, as well as to new buildings.

SECT. 31, Every header more than four feet long, used in any building except a dwelling, shall be hung in stirrup irons, of suitable dimensions for the size of the timbers, and securely joint bolted. All tail beams shall be properly framed or hung to headers.

SECT. 32. The ends of all floor beams and rafters of a brick building entering a wall shall be cut on a splay of three inches in their width.

SECT. 33. No floor timber, header or trimmer of a brick building shall be cut into more than two inches in depth for piping, without a permit from the inspector, and no cutting shall be made in any timber at a greater distance than three feet from its support.

### CHIMNEYS AND HEATING APPARATUS.

SECT. 34. All chimneys hereafter erected shall be built from the ground, of brick, stone or other fire-proof non-

conducting materials, and shall be built plumb, or nearly so, so as to be self-sustaining; *provided*, however, that brick flues may be securely built into the brick work of the walls of the building to which they are hung, when the walls are not less than twelve inches thick; *and provided also*, that upon special permission. first obtained from the board of aldermen, chimneys may be built upon cast-iron or hard pine columns set upon iron plates at least one and one-half inches thick with sockets and capped at their upper ends with a metal plate at least two inches thick and not more than two inches shorter upon either side than the corresponding sides of the chimney; or upon permission being obtained as above, chimneys may be built upon a flooring of masonry supported by iron beams which have secured bearings on masonry or iron at each end, the same to be constructed in all respects to the satisfaction of the inspector of buildings; *and provided also*, that the matter of the construction of chimneys in small wooden buildings, other than dwelling houses, not more than one story and a half in height shall be left to the decision of the inspector of buildings, but must be constructed in accordance with his instructions and to his satisfaction.

SECT. 35. All brick chimney-flues shall be smoothly plastered inside with mortar from top to bottom, during the course of construction, and also outside below the roofing after having been examined and approved by the inspector of buildings; except that exposed portions of said chimneys when the walls of the flues are eight inches thick may be left unplastered upon the outside. Said chimneys shall be topped out with brick or stone, laid in cement, and the topping out shall not have more than two inches, projection, unless the bricks are covered by a cap of stone or other non-combustible material in one piece, properly secured, and approved by the inspector; and in no case shall a nail be driven into the masonry of any flue.

SECT. 36. The shell of all flues for boilers, ovens, and ranges set in brick, shall hereafter be of brick work eight inches thick, or its equivalent, to the top of the first floor above said boilers, ovens, or ranges. Ranges set in brick and boilers shall have the outside of their flues exposed without covering, except by plastering directly upon the bricks, up to the ceiling of the room, and no wood work shall be placed on the outside of the same.

SECT. 37. No wood work of any kind, except the roof covering, shall be placed at a less distance than one inch from the outside of the brick work of any flue. No wood work shall be placed at a less distance than one inch from any tin or other metal flue or pipe used or intended to be used to convey heated air, hot water or steam in any building, unless such flue or pipe be cased with a metal sleeve of larger diameter than said flue or pipe, so as to permit a free circulation of air all around the same.

SECT. 38. No soft bricks shall hereafter be used in the construction of any wall, chimney, or flue referred to in this ordinance.

SECT. 39. No smoke-pipe in any building with wooden or combustible floors or ceilings shall hereafter enter any flue, except at a distance not less than twelve inches from said floor, or ceiling; and in all cases where smoke-pipes pass through stud or wooden partitions of any kind, whether the same be plastered or not, they shall be guarded by a soapstone ring having a thickness radial to said pipe of not less than two inches, and extending through said partition, and in cases where smoke-pipes pass through wood work of any kind in such near proximity to the brick work of the flue that the space between said wood work and flue is inaccessible, said pipe shall be guarded by a soapstone ring or thimble, or its equivalent, having a thickness of at least two inches, and extending from the outer face of said wood work to a point at least two inches within the brick work of the flue in which it shall be firmly set.

SECT. 40. All hearths shall be supported upon trimmer arches of brick or stone, or upon bars of iron supporting a bed of brick work and shall be at least twelve inches longer than the width of the fireplace openings and at least eighteen inches wide in front of the chimney breast.

SECT. 41. No furnace, or range set in masonry shall hereafter be placed, or its location changed in any building, without a permit from the inspector of buildings, who shall prescribe such regulation for the setting or placing thereof as in his judgment the public safety may require.

SECT. 42. The top of every heating furnace not set in brick shall be kept at least six inches below the beams or ceiling, with a shield of tin plate, made tight, suspended not less than two inches below the said beams or ceiling, and extending at least

one foot beyond the top of the furnace on all sides. If the furnace is set in brick and the ceiling is plastered, or the beams are covered with metal, the top of the brick work may be kept within not less than six inches of the ceiling or beams without the intervention of the tin plate shield.

SECT. 43. No steam heating apparatus shall be placed in any dwelling-house now or hereafter built without a permit from the inspector of buildings, who shall prescribe such regulations for the setting or placing of the same as in his judgment the public safety may require.

SECT. 44. No furnace for melting iron or making glass, and no stationary steam engine or steam boiler to be used for mechanical purposes and in which any other fuel than coal is used or to be used shall be hereafter erected or put up to be used without a license first obtained from the board of aldermen, and in no case shall a stationary engine propelled by steam or other motive power be hereafter erected or put up for use within five hundred feet of a dwelling house or public building unless a license therefor has first been obtained from the board of aldermen, and upon the granting of such a license in either of the cases referred to in this section, the person or persons receiving it shall, before setting, erecting or placing said boiler, engine or furnace, obtain a permit from the inspector of buildings, who shall prescribe such regulations for the setting or placing thereof as in his judgment the public safety may require.

SECT. 45. No smoke pipe or flue shall project through any external wall or through any window, door or other opening in said wall.

SECT. 46. All floor timbers, headers and trimmers of every brick building hereafter erected, or altered, in which a chimney is built in a brick wall, shall be placed distant at least two inches from the outside of every chimney flue, and the space between such timbers and the brick work of the chimney shall be closed by a proper fire stop of incombustible material.

SECT. 47. If any chimney, flue or heating apparatus on any premises, in the opinion of the inspector, endangers the premises, he shall at once notify in writing the owner or agent of such premises. If such owner or agent fails to commence to make such chimney, flue or heating apparatus safe by 12 o'clock noon of the day following the service of such notice, and diligently

prosecuting the work to completion, he shall be subject to a fine of not less than ten dollars nor more than fifty dollars.

SECT. 48. No boiler to be used for steam motive power, and no furnace for melting metal or making glass, shall be placed on any floor above the cellar or basement unless the same is set upon masonry built up from the ground, or upon iron beams supported upon masonry, and all wood work and timbers shall be removed from the floor under the same; *provided*, however that furnaces for melting such metals only as fuse at a temperature not exceeding eight hundred degrees Fahrenheit, and that are connected with the chimney by a sheet metal pipe exposed to view, may be placed upon hollow brick or stone hearths, supported by the wooden floor of the first story or basement, the air spaces in which hearths shall be not less than three inches in perpendicular height, and connected by suitable air passages, with the atmosphere of the room.

### HOT AIR REGISTERS.

SECT. 49. All hot air register boxes hereafter placed in the floors or partitions of buildings shall be set in soapstone borders not less than two inches in width, firmly set in plaster of Paris or gauged mortar, or in such other protection as shall in the judgment of the inspector be equivalent to soapstone; shall be made of tin plate with a flange on the top to fit the rabbet in the soapstone, and shall have an open space of one inch on all sides extending from the under side of the ceiling below the register, or the back side of the partition to the soapstone in the floor or partition; the outside of said space to be covered with a casing of tin plate, tight on all sides and extending from the underside of said ceiling or back side of said partition, to and turn under the said soapstone; but register boxes of fifteen by twenty-five inches or more in size shall have a space as above of two inches.

### FIRE GUARDS.

SECT. 50. The insides of all furred brick walls of every brick building hereafter erected shall have a fire belt or stop, composed of some fire-proof material, at least six inches wide and thoroughly set up between furrings at the top and bottom of each floor and in each story, in which stud walls or partitions are con-

structed, and rest on walls or other partitions; said stud walls and partitions shall have the spaces between the floor joists immediately under such walls or partitions, and between studs from the undersides of said floor joists to a line six inches above the tops of said joists filled solid and flush with the plastering on both sides with mortar, cement, plaster or other incombustible material; and if such studs or partitions shall rest upon solid timber or joists for the whole length thereof, such filling as above described shall be placed from the top of such timber or joists to the same height as above specified; or a strip of tin or galvanized iron, at least one inch wider than the width of said studding, and continuing under the footing of said walls or partitions, may be substituted for the filling above specified, where there is no partition or wall beneath. The exterior and interior walls of all wooden buildings hereafter erected, shall have the space between the studding at the top and bottom of each story divided or separated by a fire stop so as to check effectually the draft from one story to another and from the vertical spaces in the walls to the horizontal passages between the floor timbers. The spaces between stringers or carriages of all wooden staircases, unless said stringers or carriages are left exposed, shall be closed at intervals not exceeding three feet by substantial stops of incombustible material.

SECT. 51. The various forms of construction tending to create or form air passages from one story to another, such as spaces around pipes, ventilating shafts, or chimneys furred off to form breasts, in every building hereafter erected or altered, shall have a fire and smoke-top at each floor, approved by the inspector, which fire and smoke-top in all brick buildings shall be of incombustible material. All ventilation ducts shall be of incombustible materials.

SECT. 52. No bay-window balcony shall be built upon the front wall of any building, so as to project over the line of the street, without a special license therefor from the board of aldermen.

SECT. 53. Whenever any person is about to erect or alter the exterior walls of a building, within five feet of the line of a travelled street, he shall cause the portion of the site of the building bordering upon the street to be enclosed by a proper fence not less than four feet high, and at least five feet from the line of such building; and if such fence prevents passage on the

sidewalk, shall lay and maintain a plank walk around the same not less than twenty-four inches wide; and the fence shall be made as much higher and the walk as much wider as the inspector of buildings shall direct, and the same shall be maintained until all liability to accident from falling materials ceases. No person shall erect, or continue when erected, any staging in any highway, for the pnrpose of repairing or erecting a building without first obtaining permission from the inspector of buildings, and all such staging shall be so erected and secured as to be safe and sufficient for the purpose for which it was erected. In erecting any building, no person shall place, deposit, or suffer to remain in any street or highway, any lumber or other building material, rubbish or remains of any old building, for a longer period than may be necessary for the prosecution of the work which may be going on; and in case such material, rubbish or remains of an old building shall necessarily remain after dark, a sufficient light shall be placed over or near the same, and kept from sunset to sunrise. All rubbish from the erecting or repairing of any building, or the removal of an old building, shall be carried away by the person so erecting or repairing such building at such time as the surveyors of highways may direct; and in case of neglect or refusal so to do, it shall be removed by the surveyors of highways at the expense of such person. Any person violating any provision of this section shall pay a fine of five dollars.

### SNOW GUARDS ON ROOFS.

SECT. 54. Every building hereafter erected upon the line, or within five feet of the line of any street, square, court, place or other travelled way, and having a slated pitch roof sloping towards said street, square, court, place or travelled way, shall be provided with suitable snow barriers or guards upon said roof to prevent the snow sliding therefrom, the same to be constructed and applied to the satisfaction of the inspector of buildings.

### PLUMBING AND HOUSE DRAINAGE.

SECT. 55. No person shall carry on the business of plumbing in this city, unless he first registers his name and place of business in the office of the inspector of buildings, and notice of any

change in the place of business of a registered plumber shall be immediately given to the inspector.

SECT. 56. On every street provided with a common sewer the sewage from each building on said street shall be conducted into such sewer.

SECT. 57. That portion of the house drain which is outside of the building, and more than four feet from the foundation walls, shall be constructed of iron pipe or vitrified drain pipe.

SECT. 58. That portion of the drain pipe outside or under the building and within four feet of the foundation walls, together with the soil pipe, shall be constructed of cast iron with leaded joints. The waste pipe connected with the conductors from the roofs, and other pipes inside the building or outside and within four feet of the foundation walls, shall be constructed of iron with leaded joints.

SECT. 59. The house drain and other pipes for the conveyance of sewage shall be laid with uniform grade and with a fall of not less than one inch in four feet, except in those cases where the city engineer may otherwise permit.

SECT. 60. The main house drain shall be provided with a trap with a suitable clean-out, which shall be located either outside or inside the foundation walls of the building and beyond all house connections. All pipes connecting a water-closet with a soil pipe shall be trapped, each separately and close to the connection of each water-closet. All waste pipe shall be trapped, each separately, and close to the connection with each bath, sink, bowl, or other fixtures.

SECT. 61. All soil pipes shall be carried at their full size through the roof and left open. A provision shall also be made for admitting air to the house drain, side of the main trap.

SECT. 62. Waste pipes from refrigerators or other receptacles in which provisions are stored, shall not be connected with a drain, soil pipe or other waste pipe.

SECT. 63. The joints in the vitrified pipe shall be carefully cemented, under and around the pipe, and the joints in the cast-iron pipe shall be run and calked with lead.

SECT. 64. All changes in direction shall be made with curved pipes, and all connections shall be made with Y branch pipes.

SECT. 65. All joints and pipes shall be made air tight. Connections of lead pipe with iron pipe shall be made with brass

ferrules, properly soldered and calked to the iron. The whole work to be executed by skilful mechanics in a thorough and workmanlike manner, and satisfactory to the board of health.

SECT. 66. No steam-exhaust shall be connected with any soil or waste pipe, or drain which communicates with a public sewer.

SECT. 67. All drains now built shall be reconstructed, whenever in the opinion of the Board of Health, it may be necessary.

SECT. 68. In the construction of this ordinance the following terms shall have the respective meanings hereinafter assigned them:

"Foundation wall" shall apply to that part of the outer wall of a building, other than a party wall, below the level of the ground outside said wall.

"External wall" shall apply to that part of the outer wall of a building, other than a party wall, above the foundation wall.

"Party wall" shall apply to every wall used or built as a separation of any building from any other building, or of any dwelling house from any other dwelling house.

"First floor," "second floor," and "third floor," shall be understood to mean respectively the first floor, second floor, and third floor above the cellar or basement.

The thickness of walls required by this ordinance shall be understood to apply in every case to solid masonry, exclusive of any air space.

"Chimney" shall apply to any permanent or fixed flues or passages, built into any building for conveying away the products of combustion from furnaces, stoves, boilers, ranges or fire-places.

SECT. 69. Whoever violates any provision of this ordinance shall be liable to a penalty of not more than fifty dollars, unless another penalty is specifically provided herein.

SECT. 70. The provisions of this ordinance shall not apply to buildings and structures owned or occupied by the United States or by the state of Massachusetts, nor to bridges, quays, and wharves.

SECT. 71. Chapter three of the revised ordinances is hereby repealed.

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**An Ordinance in Relation to the Salary of the City Clerk.**

From and after the first day of January, 1887, the salary of the City Clerk shall be at the rate of twenty-eight hundred dol-

lars a year, which sum shall be inclusive of all fees received by him for Dog Licenses, of his compensation for services as a member of the Board of Registrars of Voters, or in any other capacity, either under the provisions of the Ordinances of the City or of the Statutes of the Commonwealth.

He shall give to the City an official bond, with sufficient sureties, in the sum of Three Thousand Dollars, in such form as shall be satisfactory to the City Solicitor, and subject to the approval of the Mayor and Aldermen, which bond shall be executed, approved and delivered before he enters upon the duties of his office, and within ten days of his election. Should he fail to give such bond within the time herein required, the election shall be void, and a new election shall be held forthwith.

In case of the death or insolvency of any of the sureties upon any bond so given, the City Clerk shall immediately give a new bond, with sufficient sureties, as hereinbefore provided, and if he fails to give such new bond within a reasonable time after notice to do so, it shall be sufficient cause for his removal from office.

Provided, however, that the first bond herein required shall be filed within ten days from the passage of this Ordinance.

[*Adopted Jan.* 12, 1887.]

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**An Ordinance in Relation to the Salary of the Assistant City Clerk.**

From and after the first day of January, 1887, the salary of the Assistant City Clerk shall be at the rate of One Thousand Dollars a year.

[*Adopted Jan.* 12, 1887.]

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**An Ordinance in Amendment of an Ordinance in Relation to the Salary of the Assistant City Clerk.**

The Ordinance entitled "An Ordinance in relation to the salary of the Assistant City Clerk," adopted January 12, 1887, is hereby amended by adding thereto the following paragraph:

"He shall give a bond in such a form as the City Solicitor shall approve, with sufficient sureties, to be approved by the Mayor and Aldermen, in a sum not less than Three Thousand Dollars, which bond shall be executed, approved and delivered

before he enters upon the duties of his office, and within ten days after his election. Should he fail to give such bond within the time herein required, the election shall be void, and a new election shall be had forthwith. In case of the death or insolvency of any of the sureties on any bond so given, he shall immediately give a new bond, with sufficient sureties, as hereinbefore provided; and, if he fails to give such new bond within a reasonable time after notice to do so, it shall be sufficient cause for his removal from office.

"*Provided, however*, that the first bond herein required, shall be filed within ten days from the passage of this ordinance."

[*Adopted Jan.* 19, 1887.]

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**An Ordinance in Amendment of an Ordinance in Relation to Streets.**

Chapter 36 of the Revised Ordinances in relation to streets is hereby amended by the addition of two sections, as follows:

SECTION 37. No street railway corporation shall run snow plows or remove snow from its tracks in the streets of the city, unless it removes from such streets, outside of its tracks and between its rails and the sidewalks, an amount of snow sufficient to make such streets safe and convenient for public travel; and all removal of snow from the streets by such corporation shall be done under the direction and to the satisfaction of the Superintendent of Streets.

SECT. 38. No street railway corporation shall, for the purpose of melting snow on its tracks or rails, sprinkle any salt or other article of a decomposing nature thereon, or cause or allow such sprinkling to be done by any of its agents; nor shall it for such purpose wash its tracks or rails or cause them to be washed by any of its agents, with brine or pickle, except by the written permission of the Superintendent of Streets. Whoever violates the provisions of this section shall forfeit and pay to the use of the City of Cambridge the sum of twenty dollars.

[*Adopted Jan.* 19, 1887.]

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**An Ordinance in Amendment of an Ordinance in Relation to Streets.**

Section 14, of Chapter 36, of the Revised Ordinances, as amended December 16, 1885, is hereby amended in the first par-

agraph of that portion adopted on the date hereinbefore stated by striking out all between the word "authorized" in the third line, and the word "such" in the tenth line, and inserting in place thereof the following: "to grant such license, and walks hereafter laid under authority of such license, shall be not less than three feet wide, and made in sections not more than twelve feet long, of spruce or pine lumber of uniform thickness, of not less than one nor more than two inches; and each section shall be cross-tied every three feet in length, with two by four-inch joist."

Also, by adding at the end of the said first paragraph the following: "Nothing herein shall be construed to prevent the relaying, for not more than four years, hereafter, with permission of the Board of Aldermen or person by it authorized as hereinbefore required, of board or plank walks heretofore laid, provided such walks are not less than two feet wide and in good repair."

As amended, the three paragraphs of the section aforesaid, relating to plank walks, will stand as follows:

"No person shall place upon any sidewalk any board or plank walk, without first obtaining a written license from the Mayor and Aldermen, or some person by them authorized to grant such license; and walks hereafter laid under authority of such license shall be not less than three feet wide, and made in sections not more than twelve feet long, of spruce or pine lumber, of uniform thickness of not less than one nor more than two inches; and each section shall be cross-tied every three feet in length, with two by four-inch joist. Such walks shall be constructed in accordance with a plan in the office of the City Engineer, and shall be subject to the approval of the Standing Committee on Roads and Bridges of the Board of Aldermen, and the Superintendent of Streets, and may be removed by them whenever in their judgment they may deem that the public safety and convenience require such removal. Nothing herein shall be construed to prevent the relaying for not more than four years hereafter, with permission of the Board of Aldermen, or person by it authorized, as hereinbefore required, of board or plank walks heretofore laid, provided such walks are not less than two feet wide and in good repair.

"*Provided*, that exceptions may be made in relation to the requirement concerning the width of plank walks in cases where the sidewalk is too narrow to admit of the prescribed width, and

in such cases the Standing Committee on Roads and Bridges of the Board of Aldermen, shall be authorized to make and allow any necessary change.

"Plank walks, authorized as hereinbefore provided, shall be laid and kept in proper condition by the respective owners thereof, and the same shall be taken up by such owners during the spring months whenever the Committee aforesaid and the Superintendent of Streets shall so direct."

[*Adopted March* 2, 1887.]

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**An Ordinance in Amendment of an Ordinance in Relation to Taxes.**

Section 10, of Chapter 37, of the Revised Ordinances is hereby amended in the second line of the first sentence, by striking out the word "four" and inserting in place thereof the word "three."

An amended, the sentence referred to will stand as follows: "Whoever pays his taxes on or before the tenth day of October shall be entitled to a discount of three per cent.

[*Adopted March* 2, 1887.]

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**An Ordinance in Amendment of an Ordinance in Relation to Taxes.**

Section 10 of Chapter 37 of the Revised Ordinances is hereby amended by adding at the end thereof, the following:

"Upon all taxes remaining unpaid upon the first day of November, interest shall be charged at the rate of seven per cent per annum.

[*Adopted May* 25, 1887.]

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**An Ordinance in Relation to the Compensation of the Members of the Police Force.**

From and after the first day of September 1887, the compensation of t he members of the Police Force shall be as follows:

| | | |
|---|---|---|
| Chief of Police. . . . . | $1,700 00 | per year. |
| Captains . . . . . | 1,248 00 | per year. |
| Sergeants . . . . . | 21 00 | per week. |
| Sergeant, detailed to act as Inspector, while on that duty . . . . . | 3 25 | per day. |

| | | |
|---|---|---|
| Patrolmen, for first two years of service . | 17 | 50 per week. |
| Patrolmen, after two years of service . . | 20 | 00 per week. |

[*Adopted July* 13, 1887.]

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**An Ordinance in Relation to Commons and Public Grounds.**

SECTION 1. The Superintendent of Streets, under the direction and control of the Joint Standing Committee on Roads and Bridges, shall have the care of the commons and all the public squares and enclosures belonging to the city, and may with said committee, make all authorized contracts for the supply of labor or materials required by him hereunder.

SECT. 2. No person, except by permission of said committee shall climb a tree on the common or other public grounds, nor tie a horse or other animal to, nor post a bill, nor place a sign upon or around any tree on the public grounds or streets of the city.

SECT. 3. No person, except by permission of the Mayor or the committee aforesaid, shall ride, lead or drive a horse, in or upon the common or other public grounds, except upon the occasion of a military parade, exercise or review, or other public celebration, and no owner of a horse or other grazing animal shall suffer the same to go at large or feed upon the common or other public grounds.

SECT. 4. No person, except by permission of said committee, and for some public use, shall dig or carry away any sward, gravel, sand, turf, or earth from, nor carry or cause to be carried upon the common or other public grounds any carcass, ordure, filth, dirt, stones, or any offensive matter whatever, or throw or place thereon any stones, sand, gravel, tan, earth, rubbish, or other substance.

SECT. 5. No person, except by permission of the committee aforesaid, shall carry or cause to be carried upon the common or other public grounds, a wheelbarrow, handcart, bicycle, or other vehicle for the conveyance of burdens, or for pleasure, except children's carriages.

SECT. 6. No person shall shake or otherwise clean a carpet on the common or other public grounds; and no person shall commit a nuisance thereon.

SECT. 7. No person, except by permission of said committee, shall engage in a game of ball, foot-ball or base-ball, or other athletic sports upon the common or other public grounds, except upon such portions thereof as may be set apart for such purposes.

SECT. 8. No person, except by permission of the Mayor, shall deliver a sermon, lecture, address, or discourse on the common or other public grounds.

SECT. 9. No person, except by permission of said committee, shall expose for sale or sell any goods, wares, or merchandise on the common or other public grounds, nor erect nor maintain a booth, stand, tent, or apparatus of any kind for purposes of amusement or show thereon.

SECT. 10. No person shall pull up, break, cut or deface any of the seats, fences, or railing upon or around the common or other public grounds, nor deface the monuments or statues on said common, nor interfere with any of the hydrants upon said common or other public grounds.

SECT. 11. No person shall walk, stand, sit, or lie down in or upon, or pull a flower or plant out of a flower-bed on the common or other public grounds, nor suffer a dog or other animal belonging to him, or in his charge, to stand or walk upon such flower-bed.

SECT. 12. No person shall walk, stand or lie upon the grass upon the common or other public grounds after such walking, standing, or lying has been prohibited by said committee, and notice of such prohibition given to the public by legible notices placed on such common or public grounds by said committee.

SECT. 13. The Superintendent of Streets, under the direction of said committee, shall have the care of the trees in the public streets of the city. He shall cause all statutes and ordinances made for the protection of the common and other public grounds and the trees on the public streets to be strictly enforced, and shall institute legal proceedings against all persons violating such statutes or ordinances.

SECT. 14. All ordinances or parts of ordinances inconsistent herewith, are hereby repealed.

SECT. 15. Whoever violates any provisions of this ordinance shall forfeit and pay to the use of the city a sum not exceeding twenty dollars.

[*Adopted Nov.* 17, 1887.]

# MAYORS

OF

# THE CITY OF CAMBRIDGE.

## FROM 1846 TO 1888.

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| | | | | | |
|---|---|---|---|---|---|
| James D. Green . . . | from | May, | 1846, | to April, | 1848. |
| Sidney Willard . . . | " | April, | 1848, | to April, | 1851. |
| George Stevens . . | " | April, | 1851, | to April, | 1853. |
| James D. Green, . . | " | April, | 1853, | to April, | 1854. |
| [1]Abraham Edwards . | " | April, | 1854, | to January, | 1855. |
| Zebina L. Raymond . | " | January, | 1855, | to January, | 1856. |
| John Sargent . . . | " | January, | 1856, | to January, | 1860. |
| [2]James D. Green . . | " | January, | 1860, | to July 24, | 1861. |
| [3]Charles Theo. Russell | " | July 31, | 1861, | to January, | 1863. |
| George C. Richardson | " | January, | 1863, | to January, | 1864. |
| Zebina L. Raymond . | " | January, | 1864, | to January, | 1865. |
| J. Warren Merrill . | " | January, | 1865, | to January, | 1867. |
| Ezra Parmenter . . | " | January, | 1867, | to January, | 1868. |
| Charles H. Saunders | " | January, | 1868, | to January, | 1870. |
| Hamlin R. Harding . | " | January, | 1870, | to January, | 1872. |
| Henry O. Houghton . | " | January, | 1872, | to January, | 1873. |
| Isaac Bradford . . | " | January, | 1873, | to January, | 1877. |
| Frank A. Allen . . | " | January, | 1877, | to January, | 1878. |
| Samuel L. Montague . | " | January, | 1878, | to January, | 1880. |
| James M. W. Hall . | " | January, | 1880, | to January, | 1881. |
| James A. Fox . . . | " | January, | 1881, | to January, | 1885. |
| William E. Russell . | " | January, | 1885. | Now in | office. |

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1 Municipal year changed.

2 Resigned.

3 First elected by the City Council.

# GOVERNMENT

OF

# THE CITY OF CAMBRIDGE.

1888.

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**MAYOR.**

HON. WILLIAM E. RUSSELL.

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**ALDERMEN.**

EDWARD W. HINCKS, *President.*

JOHN H. CORCORAN,
HENRY A. DOHERTY,
DANIEL E. FRASIER,
EDWARD W. HINCKS,
P. ALLEN LINDSEY,
ALEXANDER MILLAN,
WILLIAM T. NEILON,
CHARLES F. STRATTON,
SOLOMON S. SLEEPER,
FRANK H. TEELE.

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**Aldermen, by Wards.**

| | | |
|---|---|---|
| Ward 1. | Aldermen | HINCKS and MILLAN. |
| " 2 | " | LINDSEY and TEELE. |
| " 3 | " | DOHERTY and NEILON. |
| " 4 | " | CORCORAN and FRASIER. |
| " 5 | " | SLEEPER and STRATTON. |

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**Clerk.**

WALTER W. PIKE.

## COMMON COUNCIL.

ALVIN F. SORTWELL, *President*,

JAMES F. AYLWARD.
EDWARD A. BINGHAM,
ELMER H. BRIGHT,
PATRICK J. CALLAHAN,
GEORGE E. CARTER,
JOHN S. CLARY,
WILLIAM H. EVELETH,
FRANKLIN W. HAYNES,
THOMAS HOULLAHAN,
FREEMAN HUNT,
JOHN H. H. MCNAMEE,
JAMES H. MCPECK,
WALTER H. MURDOCK,
JOHN E. PARRY,
WILLIAM T. PIPER,
CHARLES F. SANBORN,
WM. S. SHANNON,
ALVIN F. SORTWELL,
CHARLES WAUGH,
EDWARD C. WHEELER.

### Common Council, by Wards.

Ward 1. Messrs. EVELETH, MCNAMEE, CARTER and PIPER.
" 2. Messrs. BRIGHT, HOULLAHAN, MCPECK, SORTWELL and WHEELER.
" 3. Messrs. AYLWARD, CALLAHAN, CLARY and SHANNON.
" 4. Messrs. BINGHAM, HAYNES, MURDOCK, SANBORN and WAUGH.
" 5. Messrs. HUNT and PARRY.

### Clerk.

EDWARD N. MANNING.

### Page.

WILLIAM LOCKLIN.

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## CITY CLERK.

WALTER W. PIKE.

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## ASSISTANT CITY CLERK.

EDWARD J. BRANDON.

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## CITY MESSENGER.

FRANCIS L. PRATT.

# COMMITTEES OF THE CITY COUNCIL.

## Joint Standing Committees.

**Accounts.**—*Aldermen* STRATTON and TEELE; *Councilmen* PIPER, SANBORN and AYLWARD.

**Almshouse.**—*Aldermen* NEILON and SLEEPER; *Councilmen* AYLWARD, MURDOCK and PARRY.

**Assessors' Department.**—*Alderman* CORCORAN; *Councilmen* PARRY and PIPER.

**City Engineering.**—*Aldermen* STRATTON and MILLAN; *Councilmen* WHEELER, WAUGH and CLARY.

**Claims.**—*Aldermen* MILLAN, NEILON and CORCORAN; the PRESIDENT, and *Councilmen* HOULLAHAN, MURDOCK, MCNAMEE, HUNT and AYLWARD.

**Finance.**—The MAYOR, and *Aldermen* SLEEPER, CORCORAN and TEELE; the PRESIDENT, and *Councilmen* HAYNES, CARTER, WHEELER, PARRY and CLARY.

**Fire Department.**—*Aldermen* LINDSEY and NEILON; *Councilmen* EVELETH, MCPECK and HAYNES.

**Fuel.**—*Aldermen* LINDSEY and FRASIER; *Councilmen* WAUGH, CALLAHAN and MCPECK.

**Health.**—*Aldermen* DOHERTY and SLEEPER; *Councilmen* SHANNON, SANBORN and PIPER.

**Lamps.**—*Aldermen* HINCKS and STRATTON; *Councilmen* BINGHAM, CALLAHAN and CARTER.

**Ordinances.**—*Aldermen* LINDSEY and NEILON; *Councilmen* HOULLAHAN, AYLWARD and HUNT.

**Printing.**—*Aldermen* FRASIER and LINDSEY; *Councilmen* HOULLAHAN, MCNAMEE and MURDOCK.

**Public Instruction.**—*Aldermen* HINCKS and MILLAN; the PRESIDENT, and *Councilmen* HUNT, WHEELER and SANBORN.

**Public Property.**—*Aldermen* FRASIER and TEELE; *Councilmen* EVELETH, BINGHAM and SHANNON.

**Roads and Bridges.**—*Aldermen* HINCKS and DOHERTY; *Councilmen* WAUGH, PIPER and BRIGHT.

**Rules and Orders.**—*Aldermen* CORCORAN and FRASIER; *Councilmen* HAYNES, SHANNON and AYLWARD.

**Water Supply.**—*Aldermen* TEELE and DOHERTY; *Councilmen* CARTER, SHANNON and SANBORN.

### Special Committees of the City Council.

**Legislative Matters.**—*Aldermen* SLEEPER and HINCKS. *Councilmen* BINGHAM, BRIGHT, and HUNT.

**Harvard Bridge.**—The MAYOR, and *Aldermen* CORCORAN, STRATTON, and DOHERTY. The PRESIDENT, and *Councilmen* MCPECK, CALLAHAN, PARRY, MCNAMEE, and MURDOCK. The CITY ENGINEER and CITY SOLICITOR.

**On the Rindge Gifts.**—The MAYOR, and *Aldermen* FRASIER and STRATTON. The PRESIDENT, and *Councilmen* MCPECK, HAYNES, and PIPER.

**Salable City Lands.**—*Aldermen* FRASIER and TEELE. The PRESIDENT, and *Councilmen* EVELETH, BINGHAM, and SHANNON.

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### Standing Committees of the Mayor and Aldermen.

**Bonds.**—*Aldermen* NEILON, MILLAN, and TEELE.

**Claims.**—*Aldermen* MILLAN, NEILON, and CORCORAN.

**Elections and Returns.**—*Aldermen* NEILON, HINCKS, and LINDSEY.

**Fire Department.**—*Aldermen* LINDSEY, NEILON, and MILLAN.

**Health.**—*Aldermen* DOHERTY, SLEEPER, and FRASIER.

**Licenses.**—*Aldermen* LINDSEY, STRATTON, and DOHERTY.

**Police.**—The MAYOR, and *Aldermen* STRATTON, CORCORAN, and DOHERTY.

**Roads and Bridges.**—*Aldermen* HINCKS, DOHERTY, and TEELE.

**Rules and Orders.**—*Aldermen* CORCORAN, FRASIER, and STRATTON.

**Sewers.**—*Aldermen* HINCKS, FRASIER, and SLEEPER.

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### Special Committee of the Board of Aldermen.

**Soldiers' Aid.**—*Aldermen* HINCKS, LINDSEY, SLEEPER, FRASIER, and NEILON.

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### Committees of the Common Council.

**Bills in the Second Reading.**—*Councilmen* CLARY, WHEELER, and MCNAMEE.

**Elections and Returns.**—*Councilmen* MCPECK, CALLAHAN, and PARRY.

**Enrolled Ordinances.**—*Councilmen* BRIGHT, EVELETH, and HAYNES.

**Members of the City Council,**

With the Committees on which they have been appointed.

The Mayor. — Finance, Police, Harvard Bridge, Rindge Gifts.

Alderman Corcoran. — Assessors' Department, Claims, Finance, Harvard Bridge, Police, Rules and Orders.

Alderman Doherty. — Health, Roads and Bridges, Water Supply, Harvard Bridge, Licenses, Police.

Alderman Frasier. — Fuel, Printing, Public Property, Health (Standing), Sewers, Soldiers' Aid, Rindge Gifts, Salable City Lands, Rules and Orders.

Alderman Hincks. — Lamps, Public Instruction, Roads and Bridges, Legislative Matters, Sewers, Soldiers' Aid, Elections and Returns.

Alderman Lindsey. — Fire Department, Fuel, Ordinances, Printing, Licenses, Soldiers' Aid, Elections and Returns.

Alderman Millan. — City Engineering, Claims, Public Instruction, Bonds, Fire Department (Standing).

Alderman Neilon. — Almshouse. Claims, Fire Department, Ordinances, Bonds, Soldiers' Aid, Elections and Returns.

Alderman Sleeper. — Almshouse, Finance, Health, Legislative Matters, Sewers, Soldiers' Aid.

Alderman Stratton. — Accounts, City Engineering, Lamps, Harvard Bridge, Licenses, Police, Rindge Gifts, Rules and Orders (Standing).

Alderman Teele. — Accounts. Finance, Public Property, Water Supply, Bonds, Roads and Bridges (Standing), Salable City Lands.

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The President of the Common Council. — Claims, Finance, Public Instruction, Salable City Lands, Rindge Gifts, Harvard Bridge.

Mr. Aylward. — Accounts, Almshouse, Claims, Ordinances, Rules and Orders.

Mr. Bingham. — Lamps, Public Property, Legislative Matters, Salable City Lands.

Mr. Bright. — Roads and Bridges, Legislative Matters, Enrolled Ordinances.

Mr. Callahan. — Fuel, Lamps, Harvard Bridge, Elections and Returns.

Mr. Carter. — Finance, Lamps, Water Supply.

Mr. Clary. — City Engineering, Finance, Bills in the Second Reading.

Mr. Eveleth. — Fire Department, Public Property, Enrolled Ordinances, Salable City Lands.

Mr. Haynes. — Finance, Fire Department, Enrolled Ordinances, Rindge Gifts, Rules and Orders.

Mr. Houllahan. — Claims, Ordinances, Printing.

Mr. Hunt. — Claims, Ordinances, Public Instruction, Legislative Matters.

Mr. McNamee. — Claims, Printing, Harvard Bridge, Bills in the Second Reading.

Mr. McPeck. — Fire Department, Fuel, Harvard Bridge, Elections and Returns, Rindge Gifts.

Mr. Murdock. — Almshouse, Claims, Printing, Harvard Bridge.

Mr. Parry. — Almshouse, Assessors' Department, Finance, Harvard Bridge, Elections and Returns.

Mr. Piper. — Accounts, Assessors' Department, Health, Roads and Bridges, Rindge Gifts.

Mr. Sanborn. — Accounts, Health, Public Instruction, Water Supply.

Mr. Shannon. — Health, Public Property, Water Supply, Salable City Lands, Rules and Orders.

Mr. Waugh. — City Engineering, Fuel, Roads and Bridges.

Mr. Wheeler. — City Engineering, Finance, Public Instruction, Bills in the Second Reading.

*Clerk of Committees.*

John McDuffie.

**Board of Health.**

Henry P. Walcott, M. D., *City Physician, ex officio.*

(Term, three years. Appointed 1886.)

(Term, two years.)

William H. Whitney, (appointed 1887.)
Daniel H. Thurston, (appointed 1888.)

*Clerk.*
John McDuffie.

*Health Officer.*
Alfred F. Holt, M. D.

---

**Assistant City Physician.**

(Elected in April by the Overseers of the Poor, subject to the approval of the Mayor and Aldermen.)

Lewis L. Bryant, M. D.

---

**Health Officers.**

Lothrop J. Cloyes.
Thomas H. Lucy.
Mark J. Folsom.
John F. Murray.

---

**Surveyors of Highways.**

The same persons who compose the Board of Mayor and Aldermen.

---

**Auditor of Accounts.**

Harry T. Upham.

---

**Treasurer.**

William W. Dallinger.

---

**Assessors.**

(Term, three years.)

Joseph Whittemore (elected 1885).
Andrew J. Green (elected 1886).
Joshua G. Gooch (elected 1887).

**Assistant Assessors.**

Charles H. Hunnewell. George L. Mitchell.
William J. Marvin. John Lennon.
Thomas F. Cahir.

---

**School Committee.**

William E. Russell, Mayor, *ex officio*, *Chairman.*

(Term, three years.)

**Ward I.**

Edward H. Hall (term expires 1888).
Alice M. Longfellow (term expires 1889).
John L. Hildreth (term expires 1890).

**Ward II.**

Phebe M. Kendall (term expires 1888).
James L. Paine (term expires 1889).
Alphonso E. White (term expires 1890).

**Ward III.**

Patrick J. Finnegan (term expires 1888).
Felix Conlan (term expires 1889).
Richard J. McKelleget (term expires 1890).

**Ward IV.**

Moses D. Church (term expires 1888).
Asa P. Morse (term expires 1889).
William H. Orcutt (term expires 1890).

**Ward V.**

Albert M. Barnes (term expires 1888).
William A. Start (term expires 1889).
George A. Allison (term expires 1890).

*Secretary.*

W. W. Wellington.

---

**Superintendent of Schools.**

Francis Cogswell.

**Overseers of the Poor.**

The MAYOR, *ex officio*, *Chairman*.

(Term, five years.)

Charles E. Vaughan (elected 1883).
Sumner Albee (elected 1884).
Michael Corcoran (elected 1885).
Charles Walker (elected 1886).
Henry A. Doherty (elected 1887).

*Secretary.*

David P. Muzzey.

*Visitor.*

Vespasian Danforth.

---

**Warden of the Almshouse.**

Martin L. Eldridge.

---

**Physician of the Almshouse.**

Lewis L. Bryant, M. D.
(*Assistant City Physician.*)

---

**Cambridge Cemetery.**

*Commissioners.*

The MAYOR, *ex officio*, *Chairman*.

(Term, three years.)

Silas B. Buck (elected 1886).
David Ellis (elected 1886).
George S. Saunders (elected 1887).
John F. O'Brien (elected 1887).
Leander Greely (elected 1888).
Charles E. Raymond (elected 1888).

*Superintendent.*

Charles S. Childs.

**Trustees of Cambridge Public Library.**

*Alderman.*

Henry A. Doherty.

*Common Council.*

Alvin F. Sortwell.

*Citizens at Large.*

(Term, five years.)

Jabez A. Sawyer (elected 1884).
Henry H. Gilmore (elected 1885).
Charles Walker (elected 1886).
Samuel L. Montague (elected 1887).
Oliver H. Durrell (elected 1888).

*Librarian.*

Almira L. Hayward.

*Secretary.*

Charles Walker.

---

**Cambridge Water Board.**

The MAYOR and President of the Common Council, *ex officio.*

(Term, five years.)

Leander M. Hannum (elected 1885, in place of Henry L. Eustis, 1883, deceased).
John F. O'Brien (elected 1884).
Knowlton S. Chaffee (elected 1885).
James M. W. Hall (elected 1886).
Chester W. Kingsley, *President* (elected 1887).

*Clerk.*

Walter H. Harding.

---

**Superintendent of Water Works.**

Hiram Nevons.

---

**Pumping Engineer.**

Edwin C. Brooks.

---

**Water Registrar.**

Walter H. Harding.

**Trustees of Sinking Fund of Water Loan.**

The MAYOR, City Treasurer, and President of the Common Council, *ex officio*.

---

**Commissioners on Sinking Funds of the City.**

Term, three years.

Joseph A. Holmes (elected 1885).
Solomon S. Sleeper (elected 1886, in place of John M. Tyler, 1885, deceased).
Charles H. Saunders (elected 1886).
Frank A. Allen (elected 1886).
John C. Bullard (elected 1887).
George H. Howard (elected 1887).

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**Trustees of the Sanders Temperance Fund.**

The MAYOR, and President of the Common Council *ex officio*.

| *Alderman.* | *Common Council.* |
|---|---|
| Charles F. Stratton. | William T. Piper. |
| | Thomas Houllahan. |

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**Trustees of the Bridge Charitable Fund.**

The MAYOR, and President of the Common Council, *ex officio*.

*Alderman.*

Edward W. Hincks.

---

**Trustees of the Dowse Institute.**

The MAYOR, and President of the Common Council, *ex efficio*.

William W. Wellington. Willard A. Bullard.
Frank A. Allen.

---

**Senators in General Court.**

Third Middlesex District, Wards 1, 2, 4, 5.

Chester W. Kingsley.

Third Suffolk District, Ward 3.

Patrick D. Dwyer.

---

**Representatives in General Court.**

Chester F. Sanger.
John Read.
George Close.
John W. Coveney.
Moses D. Church.
Isaac S. Pear.
John W. Wilkinson.

---

**Registrars of Voters.**

The City Clerk, *ex officio*, Clerk of the Board.
James Cox (term expires May 1, 1888).
Horace K. Osborn (term expires May 1, 1889).
Isaac Bradford (term expires May 1, 1890).

(One appointed annually, in March or April, to hold office for three years.)

---

**Third District Court of Eastern Middlesex.**

*Standing Justice.*

William H. Orcutt.

*Special Justices.*

Samuel W. McDaniel.
Jabez Fox.

*Clerk.*

Emerson W. Law.

---

**City Solicitor.**

Charles J. McIntire.

---

**City Engineer.**

William S. Barbour.

---

**Commissioner on West Boston, Craigie's and Prison Point Bridges.**

William J. Marvin.

**Harbor Master.**

William J. Marvin.

---

**Superintendent of Streets.**

John McSorley.

---

**Superintendent of Public Buildings.**

Benjamin H. Steele.

---

**Superintendent of Lamps.**

B. Otis Danforth.

---

**Board of Engineers.**

*Chief Engineer.*

Thomas J. Casey.

*Assistant Engineers.*

| | |
|---|---|
| First Assistant . . . . . | Nathaniel W. Bunker. |
| Second Assistant . . . . . | Charles W. Brackett. |
| Third Assistant . . . . . | William B. Cade. |

*Secretary of the Board.*

Nathaniel W. Bunker.

---

**Police Department.**

*Chief of Police.*

Lothrop J. Cloyes.

*Captains of Police.*

| District I. | District II. | District III. |
|---|---|---|
| Thomas H. Lucy. | Mark J. Folsom. | John F. Murray. |

*Inspector.*

Sergeant Lawrence J. Ducey.

*Assistant Inspector.*

Sergeant Alonzo S. Harriman.

*Sergeants of Police.*

James L. Alexander.
William F. Batchelder.
Edward Brady.
Daniel Callahan.
Denis Corcoran.
William Mullett.
F. B. Pullen.
Andrew Sproul.

*Policemen.*

(With the numbers of their badges.)

| No. | | No. | |
|---|---|---|---|
| 5 | Frederick Apel. | 33 | Amos Jones. |
| 7 | George T. Barrington. | 11 | Henry C. Jones. |
| 28 | Edward F. Belcher. | 19 | Edward Joyce. |
| 53 | Elbridge S. Blen. | 32 | James M. Keany. |
| 69 | Michael J. Brennan. | 44 | Chas. C. Marston. |
| 15 | Michael Coffey. | 27 | George A. Marston. |
| 29 | Michael J. Conry. | 10 | John J. McBride. |
| 66 | Francis J. Coghlan. | 30 | Jeremiah McCarthy. |
| 20 | Timothy Corcoran. | 1 | John E. McCrehan. |
| 56 | John Coulter. | 26 | James McElroy. |
| 68 | John W. Deehan. | 64 | William H. McMenimen. |
| 39 | Wm. H. Deehan. | 57 | Hugh J. McNamee. |
| 40 | Patrick Doyle. | 43 | James E. Murray. |
| 35 | George S. Dudley. | 45 | Patrick F. Murray. |
| 50 | Thomas F. Dynan. | 4 | Michael Neilan. |
| 8 | Joseph H. Furbush. | 60 | William Nickelson. |
| 38 | Michael A. Ginty. | 18 | Charles L. Pike. |
| 2 | William H. Graves. | 52 | Charles W. Priest. |
| 41 | John J. Griffiths. | 59 | Thomas J. Real. |
| 9 | James P. Hall. | 70 | Frederick A. Robinson. |
| 25 | Thomas S. Hall. | 62 | Bernard J. Roper. |
| 12 | Timothy J. Hartnett. | 48 | William H. Ryan. |
| 14 | Benjamin F. Higgins. | 46 | Frank W. Scobey. |
| 49 | Simon D. Hiscock. | 6 | Leonard Shackford. |
| 47 | Robert T. Hixon. | 65 | John E. Shaughnessy. |
| 58 | James H. H. Holt. | 63 | John W. Skelley. |
| 22 | Moses W. Hooper. | 21 | George Smyth. |
| 37 | Patrick F. Hurley. | 31 | Charles H. Stetson. |

| No. | | No. | |
|---|---|---|---|
| 24 | David A. Stevens. | 42 | John H. Wells. |
| 61 | Cornelius Sullivan. | 23 | Michael J. Whalen. |
| 67 | Thomas F. Sullivan. | 3 | Orrin B. White. |
| 13 | William Twist. | 54 | John Wiley. |

*Policemen, without pay (within the Civil Service).*

J. L. P. Ackers.
Horace A. Allyn.
Mark H. Appleby.
Richard Balmer.
John A. Bartlett.
William H. Bates.
Joseph Beaubo.
Charles F. Bowman.
Chas. W. Brackett.
Timothy J. Breen.
James K. Bresnan.
Daniel A. Buckley.
Ferdinand N. Buffum.
Nathaniel W. Bunker.
William Burgess.
James Burke.
Thomas J. Burns.
Samuel Busnach.
William B. Cade.
W. H. Carroll.
Thomas J. Casey.
Moses M. Child.
Charles S. Childs.
Ambrose H. Clark.
Noah M. Cofran.
John Collier.
William S. Collins.
James E. Corcoran.
Patrick Corcoran.
Carl A. Corlin.
Michael Culhane,
Vespasian Danforth.
George C. Dilman.
James Doherty.
George W. Durgin.
Patrick F. Dunlea.
Frank A. Edson.
Martin L. Eldridge.
George H. Fairbairn.
Dennis J. Fielding.
John E. Fitzgerald.
Martin Flaherty.
Luther F. Flemming.
Thomas Flynn.
Oliver G. Fosdick.
William Foster.
James J. Garvin.
Charles A. Gay.
William T. Gibson.
Eli L. Goodrow.
James Grant.
George W. Greenleaf.
Henry L. Hale.
Charles E. Hancock.
Luther Hapgood.
John L. Harrington.
George H. Hastings.
Thomas M. Howard.
J. Lewis Howe.
Plumer S. Howe.
William Hunnewell.
Samuel F. Hunt.
James W. Irwin.
T. W. Jennings.
Thomas W. Jones.
A. B. Joy.

John A. Kelleher.
Barney King.
Conrad D. Kinnear.
Fred. L. Ladd.
Michael F. Lamb, Jr.
Martin V. Langley.
Charles S. Lincoln.
John Little.
Warren G. Livermore.
Abiel E. Long.
James W. Lovering.
Charles K. Luther.
John P. Maloy.
Francis M. Mason.
Bernard McCafferty.
Bernard McCaffrey.
John H. McCarty.
Joseph F. McCorry.
John B. McGovern.
Bernard McElearney.
James McNeill.
James E. McNulty.
Thomas Montgomery.
Simon J. Mulvaney.
William N. Mullins.
Dennis Murphy.
Nathaniel M. Neale.
Augustus W. Nelson.
Hiram Nevons.
James H. Newman.
Thomas F. O'Brien.
Francis A. Osborn.
William F. Peck.
Edward Penney.
Joseph A. Pike.
Frederick E. Pond.
Linn B. Porter.
Francis L. Pratt.
P. H. Raymond.
S. C. Redding.
John Riley.
Robert Rogers.
William H. Rowe.
Charles L. Russell.
Joshua S. Sanborn.
John T. Shea.
Oscar W. Short.
Andrew G. Smith.
Gideon Smith.
Henry Smith.
James W. Thompson.
George W. White.
George Wood.

*Policemen (without pay).*

Albert D. Cleveland.
Patrick Cronin.
Harry Ellis.
Antonio Francis.
James H. Furfey.
David Garvin.
Franklin C. Hatch.
Adam G. Loner.
James A. Minnaugh.
E. H. Mulliken.
Patrick Nolan.
George A. Parmenter.
William E. Potter.
Anton J. Rice.
Charles M. Sanborn.
Peter Shea.
Alex. F. Shepherd.
Joseph Skelton.
Rolly Stovvoll.
George L. Stevens.
Denis P. Sullivan.
A. Whiting Watriss.
Edgar L. Wentworth.

*Keeper of Lock-ups.*

Lothrop J. Cloyes.

*Truant-Officers.*

Moses M. Child. John Collier.
Francis M. Mason.

*Probation Officer.*

Frederick W. Hagar.

*Constables.*

George T. Barrington.
William F. Batchelder.
John L. Boynton.
Michael S. Busnach.
Lothrop J. Cloyes.
Vespasian Danforth.
Lawrence J. Ducey.
Benjamin W. Ellis.
John R. Fairbairn.
Thomas T. Ferguson.
Mark J. Folsom.
Joseph Fox.
Charles S. Gilbert.
John Good.
Alonzo S. Harriman.
Alfred F. Holt.
Appleton Hubbard.
Charles H. Hunnewell.
James M. Keaney.
John Lennon.
Charles S. Lincoln.
John Loughrey.
Thomas H. Lucy.
Frank H. Lull.
Frederic A. Lull.
James I. Murphy.
John F. Murray.
Daniel B. Nash.
John W. Skelley.
Warren F. Spaulding.

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**Undertakers.**

John W. Coveney.
Thomas Devens.
David Fudge.
Samuel F. Hunt.
Arthur C. Hanscom.
Joseph J. Kelley.
Gustavus King.
Horace D. Litchfield.
Judson Litchfield.
Roland Litchfield.
C. Henry Lockhart.
Abiel E. Long.
William Ross.
James E. Rourke.
William A. Taylor.
Benjamin F. Wyeth.
George F. Ricker.
John J. Ross.

### Auctioneers.

John K. Abbott.
Fred N. Brown.
Daniel A. Buckley.
Edward Burnham.
John W. Coveney.
Watson G. Cutter.
John R. Fairbairn.
Stephen H. Harrington.
John Lennon.
P. Allen Lindsey.
Frederic A. Lull.
John Mahady.
Edmund E. Sanborn.
Herbert Walker.

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### Fence-Viewers.

George B. Lothrop.
Abel Stevens.
Francis H. Stickney.

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### Field-Drivers.

James S. Alexander.
Frederick Apel.
William F. Batchelder.
George T. Barrington.
Edward F. Belcher.
Elbridge S. Blen.
Edward Brady.
Michael J. Brennan.
Daniel Callahan.
Michael Coffey.
Francis J. Coghlin.
Michael J. Conry.
Dennis Corcoran.
Timothy Corcoran.
John Coulter.
John W. Deehan.
William H. Deehan.
Patrick Doyle.
Thomas F. Dynan.
Joseph H. Furbush.
Michael A. Ginty.
William H. Graves.
John J. Griffith.
James P. Hall.
Thomas S. Hall.
Benjamin F. Higgins.
Simon D. Hiscock.
Robert T. Hixon.
James H. H. Holt.
Moses W. Hooper.
Patrick F. Hurley.
Amos Jones.
Henry C. Jones.
Edward Joyce.
James M. Keaney.
Charles C. Marston.
George A. Marston.
John J. McBride.
Jeremiah McCarthy.
John E. McCrehan.
James McElroy.
William H. McMenimen.
Hugh J. McNamee.
James E. Murray.

Patrick F. Murray.
William Mullet.
Michael Neilan.
William Nickelson.
Charles L. Pike.
Charles W. Priest.
Frederick B. Pullen.
Thomas J. Real.
Frederick W. Robinson.
Bernard J. Roper.
William H. Ryan.
Frank W. Scobey.
Leonard Shackford.
John E. Shaughnessy.
John W. Skelley.
George Smyth.
Charles H. Stetson.
David A. Stevens.
Cornelius Sullivan.
Thomas F. Sullivan.
Michael J. Whalen.
John H. Wells.
Orrin B. White.
John Wiley.
James W. Wright.

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**Measurers of Wood and Bark.**

Thomas F. Burbank.
William H. Hood.
Herbert T. Lawrence.
Albert G. Phelps.
Horace L. Porter.
Joshua S. Sanborn.

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**Pound-Keepers.**

Moses W. Hooper.

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**Fish-Officers.**

F. Stanhope Hill.
James Cox.
William B. Howland.

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**Hay-Weighers.**

Thomas Gurnham.
Joshua S. Sanborn.
Timothy Sullivan.

### Coal-Weighers.

Edward W. Blake.
Silas E. Buck.
Edward E. Coye.
George C. Gardiner.
Walter F. Grieves.
Fred. A. Humiston.
Patrick Kelley.
Herbert T. Lawrence.
Thomas H. Matthews.
George L. Mitchell.
John E. A. Mulliken.
Horace L. Porter.
Joshua S. Sanborn.
Alfred H. Wellington.
Ernest H. Wellington.

---

### Weigher of Boilers and Heavy Machinery.

Joshua S. Sanborn.

---

### Inspectors of Junk Shops.

Mark J. Folsom.
Thomas H. Lucy.
John F. Murray.

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### Sealer of Weights and Measures.

B. Otis Danforth.

*Deputy Sealer.*

Conrad D. Kinnear.

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### Weighers.

Joseph W. Averill.
Leonard R. Bacon.
George W. Barnes.
Thomas Burns.
Isaac A. Chandler.
James W. Coleman,
Ira Doughty.
John Guiney.
Alvin M. Haines.
Charles F. Hittinger.
Nathan H. Holbrook.
Henry Hooker.
Henry James.
Alfred Morrill.
Robert S. Paine.
John Reardon, Jr.
Joshua S. Sanborn.
Thomas H. Shea.
Charles F. Stafford.
George W. Wright.

**Inspector of Milk.**

Frank A. Dunbar.

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**Inspector of Vinegar.**

Frank A. Dunbar.

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**Surveyors of Mechanics' Work.**

William S. Barbour.
Arthur Hodges.
Charles A. Mason.
John S. Pollard.

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**Measurers and Surveyors.**

Henry L. Hale.

---

**Inspector of Charcoal Baskets**

B. Otis Danforth.

---

**Measurer of Grain.**

B. Otis Danforth.

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